DRAFT

Environmental Assessment

for the

La Cañada Honda Bridge Replacement Project

UPRR Santa Barbara Subdivision Milepost 304.88
Vandenberg Space Force Base



La Cañada Honda Bridge over Honda Creek, Vandenberg Space Force Base
Santa Barbara County, California

Space Launch Delta 30, Installation Management Flight
1028 Iceland Avenue, Building 11146
Vandenberg Space Force Base, CA 93437

December 2023

PRIVACY ADVISORY

This Environmental Assessment (EA) is provided for public comment in accordance with the National Environmental Policy Act (NEPA), the President's Council on Environmental Quality NEPA Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508) and 32 CFR Part 989, Environmental Impact Analysis Process (EIAP).

The EIAP provides an opportunity for public input on Department of the Air Force (DAF) decision making, allows the public to offer input on alternative ways for the DAF to accomplish what it is proposing, and solicits comments on the DAF's analysis of environmental effects.

Public commenting allows the DAF to make better, informed decisions. Letters or other written or oral comments provided may be published in the EA. As required by law, comments provided will be addressed in the EA and made available to the public. Providing personal information is voluntary. Any personal information provided will be used only to identify your desire to make a statement during the public comment portion of any public meetings or hearings or to fulfill requests for copies of the EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of EA; however, only the names of the individuals making comments and specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the EA.

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UNITED STATES SPACE FORCE
DRAFT FINDING OF NO SIGNIFICANT IMPACT/
FINDING of NO PRACTICABLE ALTERNATIVE

LA CAÑADA HONDA BRIDGE REPLACEMENT PROJECT AT UPRR SANTA BARBARA SUBDIVISION AND VANDENBERG SPACE FORCE BASE, CALIFORNIA

This DRAFT Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA) hereby incorporates by reference and attaches hereto the *Draft Environmental Assessment for the La Cañada Honda Bridge Replacement Project; UPRR Santa Barbara Subdivision Milepost 304.88, Vandenberg Space Force Base*. This EA considered all Proposed Action and No-Action Alternative potential environmental impacts and cumulative impacts and identified measures to avoid, prevent, and/or minimize environmental impacts.

PROPOSED ACTION

The Proposed Action (Preferred Alternative) is a Union Pacific Railroad (UPRR) project on Vandenberg Space Force Base (VSFB) that was developed based on the purpose, need, and selection criteria discussed in Sections 1 and 2 of the attached Draft Environmental Assessment. The Proposed Action would replace the 13-span, 541-foot-long deck plate girder (DPG) and steel towers crossing Honda Creek with a 6-span, 541.6-foot-long DPG, supported by five newly cast concrete piers. The Proposed Action would be implemented in 12 stages located in five general areas totaling approximately 17.6 acres for construction and staging (as described in Section 2.3.4). Other project components that are part of this Proposed Action include relocation and replacement of a critical fiber optic connection that extends along UPRR property and across the Honda Bridge, post-project restoration, and an area for archaeological staging/processing. After bridge construction is complete, UPRR would remove and replace all temporary fill and cut material and stabilize temporarily disturbed areas with native vegetation or biodegradable erosion control materials. All temporarily impacted wetlands, waters, and riparian vegetation (up to 2.0 acres) would be restored to their pre-project conditions or better. Up to 10.3 acres of nonnative Acacia habitat within the Honda Creek watershed was included in the Action Area for potential restoration.

Built in 1898, the steel supports of the current La Cañada Honda Bridge have deteriorated, and replacement is necessary. The Proposed Action is needed to ensure compliance with Federal Railroad Administration (FRA) and UPRR safety standards and maintenance of passenger and freight transit along California's central coast. If not replaced, the existing bridge poses a safety risk to continued rail use for interstate commerce and passenger service. If the bridge continues deteriorating, it may be deemed unsafe, and rail traffic would not be allowed to cross. Without this bridge, rail traffic would be diverted to other rail routes and result in an interruption of essential rail transportation up and down California's coastal areas. The Proposed Action is limited to disturbances and losses to wetlands, waters, and floodplains to the minimum necessary to complete the Proposed Action, and no less environmentally damaging feasible alternative is available to lessen wetland, waters, and floodplain impacts. Alternatives considered consisted of no action, in-kind replacement, offline alignment, cellular fill with arches, and long span. Except for no action and in-kind replacement, none of these alternatives met Selection Criteria 3 (minimize impacts), whereas no action, in-kind replacement, and long span did not satisfy Selection Criteria 2 (safety). Therefore, no practicable alternative other than the Preferred Alternative was identified that would meet the needs for the proposed bridge replacement project.

NO ACTION

The 40 CFR Section 1502.14(c) and DAF (Department of the Air Force) EIAP regulations require assessing the No Action Alternative as a measure of the baseline conditions compared to Proposed Action impacts. Under the No Action Alternative, the existing Honda Bridge would continue to deteriorate and remain out of compliance with UPRR design specifications and FRA regulations. Bridge maintenance would no longer suffice to maintain a serviceable and safe structure for the transport of passengers and commodities. Loss of this bridge could stop rail transport between Santa Barbara and San Luis Obispo, resulting in an overall decrease ridership along the Santa Barbara Subdivision corridor estimated at 1,237,600 passengers and an increase in greenhouse gas emissions. Maintenance of this rail line would ensure that multiple environmental, human health, socioeconomic, and transportation co-benefits continue for millions of current and future passengers traveling on this corridor, including residents of disadvantaged communities and low-income communities directly served by the Los Angeles – San Diego – San Luis Obispo Rail Corridor (LOSSAN). Non-compliance with rail safety requirements would result in eventual interruption of rail service or even bridge failure. The No Action Alternative does not meet the Proposed Action's purpose and need.

SUMMARY OF FINDINGS

The attached Draft EA analyzed the potential environmental consequences of activities associated with the Proposed Action and the No Action Alternative. Based on the analysis, neither the Proposed Action nor the No Action Alternative would result in individual or cumulatively significant impacts to any resources. Specific environmental resources with the potential for environmental consequences from the Proposed Action include: air quality, biological resources, water resources, cultural resources, earth resources, hazardous materials/solid waste/human health and safety, socioeconomics/growth inducing effects, land use (coastal zone management), transportation, and utilities. The No Action Alternative would result in more impacts than the Proposed Action, if the existing bridge experiences a catastrophic failure. Additionally, the No Action Alternative would not meet the Proposed Action's purpose and need. Other alternatives analyzed do not satisfy safety requirements or do not minimize wetland, waters, floodplain, or cultural resource impacts, whereas the Proposed Action addresses the needs and satisfies Selection Criteria 1, 2, and 3. Environmental protection measures incorporated into the Proposed Action would be implemented to avoid and/or minimize potential adverse impacts. Discretionary environmental protection measures may further reduce potential impacts of the Proposed Action.

NOTICE OF WATERS OF THE U.S. INVOLVEMENT

Pursuant to Executive Order (EO) 11990, *Protection of Wetlands*, EO 11988, *Floodplain Management*, and Air Force Instruction (AFI) 32-7064, *Integrated Natural Resources Management*, the DAF provided early public notice and requested advance public comments from June 14 to July 13, 2023 of the potential impacts to Waters of the U.S., wetlands, and water quality because of the Proposed Action. Jurisdictional wetlands occur in the Project Area and upstream/downstream from the Proposed Action Area. Honda Creek, which flows through the Proposed Action Area, meets the criteria for federal (non-wetland) waters. Impacts to these wetlands and Waters of the U.S. are unavoidable and have been minimized to greatest extent practicable by the Proposed Action. Temporary impacts to adjacent riparian habitat, considered Waters of the State of California, are unavoidable and have been minimized to greatest extent practicable by the Proposed Action.

Other alternatives were reviewed during the EA development process under the requirements of NEPA but were eliminated from further detailed analysis in the EA because they did not meet the stated purpose and need for the action, did not meet safety and operation requirements, or did not minimize special status cultural, water, and biological resources. The only practicable alternative is the Proposed Action. For the reasons stated in the EA, there is no practicable alternative to implement the Proposed Action outside of Honda Creek floodplain since the Honda Bridge provides interstate transportation to critical public access points north and south of VSFB. The USAF has a no net loss policy on wetlands. UPRR is committed to environmental protection measures for impacts to jurisdictional wetlands by restoring and enhancing wetlands at the bridge location upstream/ downstream of the project area.

PUBLIC REVIEW AND COMMENT

The Draft EA and FONSI/FONPA are being made available for public review and comment for 30 days following the publication of the Notice of Availability (NOA) in the following newspapers: *Lompoc Record* and *Santa Maria Times*. The Draft EA and FONSI/FONPA are also being distributed per the current Space Launch Delta 30 (SLD 30) NEPA Distribution List, including the State Clearinghouse. The Final EA will include an Appendix (Notice of Availability for Public Review, Proof of Delivery/Publication, Comments Received on Final Draft, and Responses) that will include a copy of the NOA, proofs of publication, proof of library deliveries, NEPA distribution list, public comments, and SLD 30 responses.

FINDING OF NO SIGNIFICANT IMPACT / FINDING OF NO PRACTICABLE ALTERNATIVE

Based on my review of the facts and analyses contained in the attached EA, conducted in accordance with the National Environmental Policy Act, 42 U.S. Code 4321 et seq., implementing Council on Environmental Quality Regulations, 40 C.F.R. Parts 1500-1508, and 32 C.F.R. Part 989, *Environmental Impact Analysis Process*, I conclude that implementing the Proposed Action (Preferred Alternative) will not have a significant effect on the human or natural environment. Pursuant to EO 11990, *Protection of Wetlands*, EO 11988, *Floodplain Management*, AFI 32-7064, *Integrated Natural Resources Management*, and the authority delegated by Secretary of the Air Force Order 791.1, and taking the above information into account, I find that there is no practicable alternative to this action and that the Proposed Action includes all practicable measures to minimize harm to the floodplains and wetland habitat environments. Therefore, further analysis in the form of an environmental impact statement is not required and a FONSI/FONPA is appropriate. I made this decision after considering all submitted information, including reviewing public and agency comments submitted during the 30-day public comment period, and considering a full range of reasonable alternatives to meet project requirements and are within the legal authority of the DAF.

_____ _____

PAUL G. FILCEK, Col, USAF Date
Chief, Space Force Mission Sustainment
(Engineering, Logistics, & Force Protection)

Attachment: Draft Environmental Assessment for the La Cañada Honda Bridge Replacement Project; UPRR Santa Barbara Subdivision Milepost 304.88 Vandenberg Space Force Base

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ACRONYMS AND ABBREVIATIONS

µg/m^3	Microgram(s) per cubic meter
30 CES/	Installation Management Flight,
CEIEA	Environmental Conservation
ACHP	Advisory Council on Historic Preservation
ACAM	Air Conformity Applicability Model
AOC	Area of Concern
ADI	Area of Direct Impact
AOI	Area of Interest
APE	Area of Potential Effects
APZ	Accident Potential Zone
Æ	Applied EarthWorks
A&M	Althouse and Meade
AREMA	American Railway Engineering & Maintenance-of-Way Assoc.
ACMs	Asbestos Containing Materials
BA	Biological Assessment
Base	Vandenberg Space Force Base
BCC	USFWS Bird Species of Conservation Concern
BMP	Best Management Practice
BO	Biological Opinion
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CCA	California Coastal Act of 1976
CCC	California Coastal Commission
CCMP	California Coastal Management Program
CCR	California Code of Regulations
CDFW	CA Department of Fish & Wildlife
CWA	Clean Water Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CEQA	CA Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	Carbon monoxide
CO_2e	CO_2 equivalents
CRLF	California red-legged frog
CRPR	California Rare Plant Rank
cy	cubic yard
CZMA	Coastal Zone Management Act
CFR	Code of Federal Regulations
DAF	Department of Air Force
DoD	Department of Defense
DoT	Department of Transportation
DTSC	Dept. of Toxic Substance Control
DOPAA	Description of Proposed Action & Alternatives
EA	Environmental Assessment
EDR	Environmental Data Records
EMS	Environmental Management System
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPMs	Environmental Protection Measures
ESA	federal Endangered Species Act
ESHA	Environmentally Sensitive Habitat Areas
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management
FONSI	Finding of No Significant Impact
FONPA	Finding of No Practicable Alternative
FRA	Federal Railroad Administration
GHG	greenhouse gas
GIS	Geographic Information System
HAPs	Hazardous Air Pollutants
HPPMs	Historic Properties Protection Measures
HPTP	Historic Properties Treatment Plan
IPaC	Information for Planning & Consultation
IRP	Installation Restoration Program
ICRMP	Integrated Cultural Resources Management Plan
IICEP	Interagency & Intergovernmental Coordination for Environ. Planning
LCZ	Lateral Clear Zone
LOSSAN	Los Angeles – San Diego – San Luis Obispo Rail Corridor
MOU	Memorandum of Understanding
$MTCO_2e$	Metric tons of carbon dioxide equivalent
MP	Mile Post
mmt	Million metric tons
MRA	Munitions Response Areas
MRS	Munition Response Sites
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NWP	Nationwide Permit
NOA	Notice of Applicability

NOAA	National Oceanic and Atmospheric Administration
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
NRO	National Reconnaissance Office
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSR	New Source Review
O_3	Ozone
OHWM	Ordinary High-water Mark
OSHA	Occupational Safety and Health Administration
PG&E	Pacific Gas and Electric
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated biphenyls
PM_{10}	Particulate matter with aerodynamic diameter less than or equal to 10 microns
$PM_{2.5}$	Particulate matter with aerodynamic diameter less than or equal to 2.5 microns
POC	Points of Contact
POL	Petroleum, Oil, and Lubricant
ppm	Parts per million by volume
project	Honda Bridge Replacement Project
PRC	Public Resources Code
RCRA	Resource Conservation and Recovery Act
ROG	Reactive Organic Gas
ROI	Region of Influence
ROW	Right-of-Way
RWQCB	Regional Water Quality Control Board
SBC	Santa Barbara County
SYBCI	Santa Ynez Band of Chumash Indians
SB	Senate Bill
SBCAPCD	Santa Barbara County Air Pollution Control District
STP	Shovel Test Pits
SCCAB	South Central Coast Air Basin
SHPO	State Historic Preservation Officer
SLC	Space Launch Complex
SLD 30	Space Launch Delta 30
SO_2	Sulfur dioxide
SPRR	Southern Pacific Railroad
SMS	Safety Management Systems
SR	State Route
SSPP	Strategic Sustainability and Performance Plan
STLC	Soluble Threshold Limit Concentration
SVOC	Semi-volatile Organic Compound
SIP	State Implementation Program
SWRCB	State Water Resources Control Board
SWPPP	Stormwater Pollution Prevention Plan
TPH	Total Petroleum Hydrocarbons
UPRR	Union Pacific Railroad
U.S.	United States
USAF	United States Air Force
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish and Wildlife Services
USC	United States Code
USGS	U.S. Geological Survey
USSF	U.S. Space Force
UXO	Unexploded ordnance
VAFB	Vandenberg Air Force Base
VSFB	Vandenberg Space Force Base
VOC	Volatile Organic Compound
WDR	Waste Discharge Requirement

1 PURPOSE AND NEED FOR THE PROPOSED ACTION

Union Pacific Railroad (UPRR) determined that the existing La Cañada Honda Bridge (hereafter, Honda Bridge) must be replaced due to its safety risk. Although Honda Bridge is on UPRR property, most construction activities and project components are on Vandenberg Space Force Base (VSFB), property of the Department of the Air Force (DAF) and headquarters for Space Launch Delta 30 (SLD 30). This DRAFT Environmental Assessment (EA) analyzes the potential environmental effects of removing and replacing Honda Bridge (Proposed Action or project).

This EA has been prepared pursuant to the National Environmental Policy Act (NEPA) Implementing Regulations [Title 40 Code of Federal Regulations (CFR) 1500-1508 (CEQ 2022)]. Per definitions described in NEPA Implementing Regulations, 40 CFR1501.7, the 'lead agency' is the DAF. The scope of analysis is defined by the potential range of environmental impacts resulting from implementing the Proposed Action, No Action, and Alternatives, as well as potential cumulative impacts from other planned federal actions on VSFB. It also identifies all relevant permits for the Proposed Action and measures to avoid or minimize environmental impacts.

1.1 Local and Regional Context

The 30.4-acre proposed Action Area and surrounding vicinity are on the south portion of VSFB (south base), located along the northwestern Santa Barbara County (SBC) coast, approximately 9 miles southwest of Lompoc and 55 miles northwest of Santa Barbara, California (Figure 1-1). UPRR's Honda Bridge crosses La Cañada Honda (hereafter, Honda Canyon) and Honda Creek at UPRR Mile Post (MP) 304.88 on the Santa Barbara Subdivision. Location coordinates are 34.60809°N, 120.63544°W (WGS 84) in the Point Arguello and Surf United States Geological Survey (USGS) 7.5-minute quadrangles (Figure 1-2). Honda Bridge is approximately 600 feet east of and inland from the Pacific Ocean, with elevation ranging from 11 feet at Honda Creek to 117 feet at the bridge deck (NAVD 88).

The Action Area is accessible from Coast Road, a coastal thoroughfare that historically connected the Santa Ynez River valley with Jalama Creek as a public transportation route. The surrounding development includes roads, utilities, and other infrastructure related to SLD 30 operations. The natural environment includes sandy beaches, rocky shorelines, sea cliffs, stabilized dunes, and coastal terraces. Honda Creek is a dynamic system with the amount of open water and distribution of vegetation dependent on variation in seasonal and interannual rainfall, tides, and storm waves. Although Honda Creek is considered a perennial stream, during periods of low precipitation it may become intermittently dry with subsurface flow between Coast Road and Honda Beach.

1.2 Purpose and Need

The purpose of the Proposed Action is compliance with Federal Railroad Administration (FRA) and UPRR safety standards and maintenance of passenger and freight transit along California's central coast. The Proposed Action is needed to ensure that Honda Bridge complies with FRA and UPRR safety standards. The bridge is essential to the only railroad route through Ventura, Santa Barbara, and San Luis Obispo counties. Built in 1898, the steel supports of the current Honda bridge have deteriorated and replacement is necessary. The Proposed Action would support continued freight and passenger train travel between San Diego and San Luis Obispo, California (Amtrak's Pacific Surfliner) and between Seattle, Washington, and Los Angeles, California (Coast Starlight). Between the Pacific Surfliner and the Coast Starlight, Amtrak runs six passenger trains per day across the Honda Bridge. The Pacific Surfliner travels between San Luis Obispo and San Diego (2 daily roundtrips, 4 crossings) and the Coast Starlight travels between the Pacific Northwest (Seattle/Portland) and Los Angeles

(2 daily crossings). These trains carry more than 2,000 passengers a day, which is equivalent to approximately 1,000 passenger vehicles (at two persons per vehicle). Long-haul freight loads and local freight haulers each use the rail twice per week. If the bridge continues to deteriorate, train service would become unsafe, diverting rail travel to the inland portions of California's Central Valley, resulting in significant delays, and potentially removing service from central coast cities.

1.3 Intergovernmental Coordination and Interagency Consultation

IAW 32 CRF Section 989.14(l), SLD 30 will involve other federal agencies, state, Tribal, and local governments, and the public in EA preparation. In meeting this requirement, as well as meeting the requirements of Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs* (14 July 1982), SLD 30 notified and consulted with relevant federal and state agencies on the Proposed Action and alternatives to identify potential environmental issues and regulatory requirements associated with project implementation. The following discussion summarizes completed agency coordination and consultations.

- **United States Fish and Wildlife Service (USFWS)** - On April 4, 2022, SLD 30 provided the USFWS with a Biological Assessment (BA; Appendix B) pursuant to Section 7(a)(2) of the federal Endangered Species Act (ESA) detailing the potential effects to federally listed threatened and endangered taxa in relation to the Proposed Action. The USFWS issued a Biological Opinion (BO) on September 23, 2022, which concluded that the Proposed Action is not likely to jeopardize the continued existence of the taxa analyzed (Appendix C).
- **California State Historic Preservation Officer (SHPO)** – SLD 30 initiated formal consultation with SHPO and the Santa Ynez Band of Chumash Indians (SYBCI) in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966 as amended (54 USC Section 300101 et seq.). On November 8, 2022 SLD 30 received SHPO concurrence with NRHP eligibility determinations for 11 cultural resources, including a finding of adverse effect at CA-SBA-530 (Appendix D). A Memorandum of Agreement (MOA) between the United States Air Force (USAF), SHPO, and SYBCI was circulated for final signatures and a copy of the signed MOA is provided in Appendix E.
- **Intergovernmental Coordination with Santa Ynez Band of Chumash Indians** - SLD 30 Commander appointed Christopher Ryan (30 Civil Engineering Squadron, Installation Management Flight, Environmental Conservation [30 CES/CEIEA]) as the Installation Tribal Liaison Officer. Mr. Ryan carried out Native American consultation via email with Nakia Zavalla, the SYBCI tribal chairman's appointee to SLD 30 for Section 106 consultations. As the SYBCI is a federally recognized tribe, SLD 30 consulted with it on a government-to-government basis. On October 12, 2022, SLD 30 formally notified the SYBCI of the Proposed Action and requested tribal comments. SLD 30 will continue consultation with the SYBCI for the life of the Project.
- **U.S. Army Corps of Engineers (USACE) –** On December 15, 2022, SLD 30 provided the USACE with a Nationwide Permit (NWP) application pursuant to Section 404 of the Clean Water Act (CWA) for proposed activities that include the discharge of fill material into waters of the United States. The USACE issued a NWP verification letter on July 18, 2023.
- **Regional Water Quality Control Board (RWQCB) –** On December 15, 2022, SLD 30 provided the RWQCB with a 401 Water Quality Certification application pursuant to Section 401 of the CWA for proposed activities that include the discharge of fill materials into waters of the State. The RWQCB issued a Water Quality Certification on June 22, 2023.

- **California Coastal Commission (CCC)** – On October 13, 2023 the CCC conditionally concurred with Consistency Certification and determined that the Proposed Action would be consistent with the enforceable policies of the California Coastal Management Program (CCMP). Special Conditions and measures are provided in CCC's Staff Report dated September 21, 2023 and a concurrence letter was provided on October 18, 2023. Concurrence letter and Staff Report are provided in Appendix F.

In addition to interagency coordination, the following permits are received or will be obtained for the proposed bridge replacement:

- **Federal Aviation Administration (FAA) –** In accordance with 14 CFR Part 77.9 the FAA was notified for use of temporary project construction cranes. The FAA conducted an aeronautical study and a determination of hazard to navigation was received. The study concluded that the temporary crane would not be a hazard to air navigation, requiring that cranes be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M (Appendix G).
- **CA State Water Resources Control Board (SWRCB)** and **RWQCB** administer CWA and state regulations. The Proposed Action would require NPDES Construction General Permit coverage as required by Section 402 of the CWA because the total disturbed area of the Proposed Action would occur in or near a riverbed and be greater than 1-acre. Construction General Permit requirements, including preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) to be prepared and implemented by qualified practitioners.

1.4 Public Involvement

Following the publication of a Notice of Availability (NOA) in the Lompoc Record and Santa Maria Times, the DAF made the Draft EA and FONSI available for public review and comment for 30 days. The DAF also distributed the Draft EA and FONSI per the current VSFB NEPA Distribution List (Section 6), including the State Clearinghouse. The Final EA will include a copy of the NOA, proofs of publication, proof of library deliveries, public comments, and responses to public comments.

Figure 1-1. Regional Location Map



Legend

Honda Bridge Replacement Location

VSFB Boundary

N

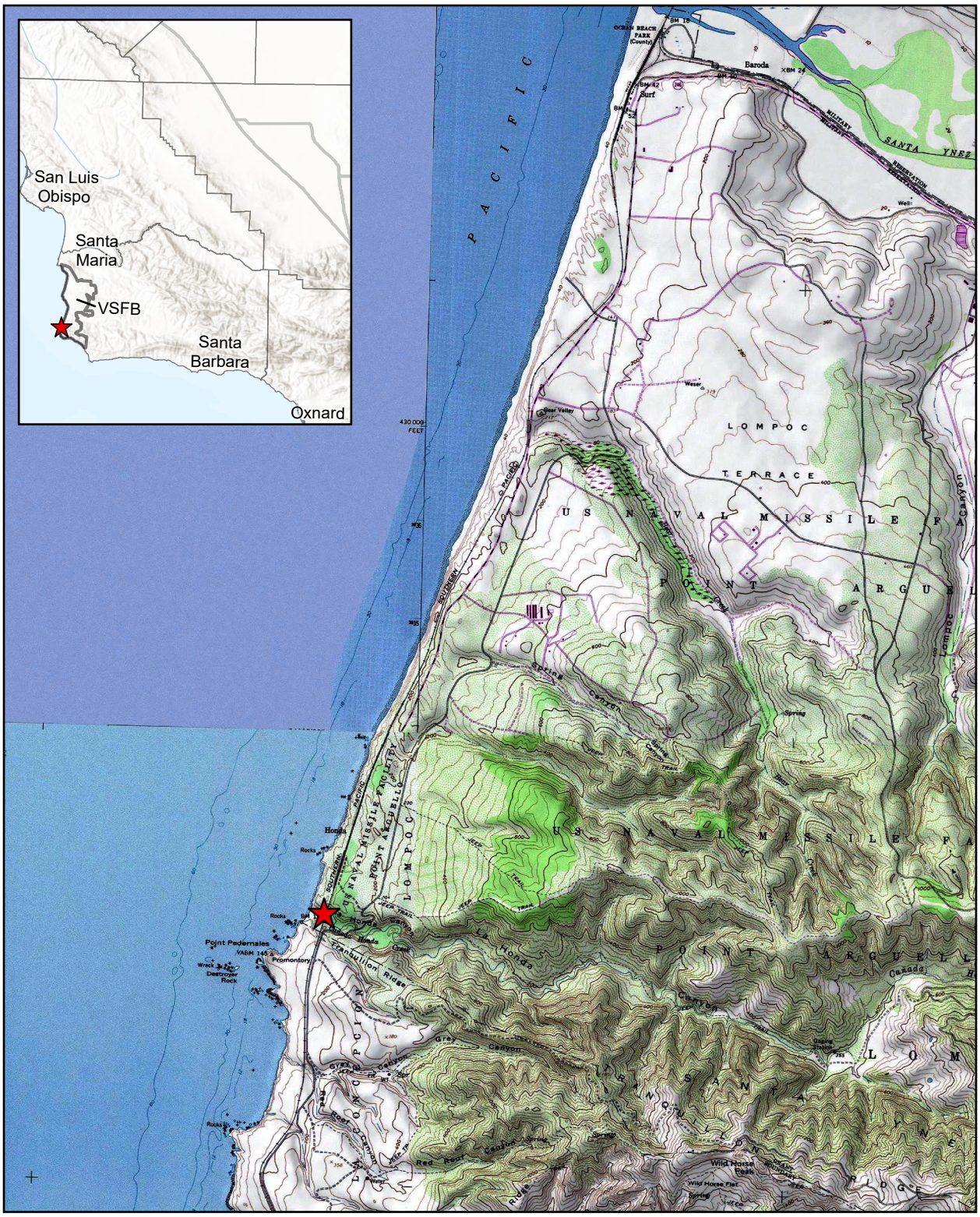
0 10 20 Miles

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.63657°W 34.6076°N
Santa Barbara County

Basemap: World Topographic Map

Map Updated: November 15, 2023 03:51 PM by ZAR

Figure 1-2. Proposed Location on USGS Map



Legend

★ Honda Bridge Replacement Location

N

0 0.5 1 Mile

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.61833°W 34.63655°N
Santa Barbara County, California

USGS Quadrangles: Point Arguello and Surf

Map Updated: November 15, 2023 03:54 PM by SAF

2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This section establishes the Proposed Action, No Action, and Alternatives. Under 40 CFR 1502.14 of the NEPA Implementing Regulations (CEQ 2022). The description of the Proposed Action and Alternatives (DOPAA) are analyzed comparatively based on these instructions:

a. Evaluate reasonable alternatives to the Proposed Action. For alternatives that were eliminated, discuss reasons for elimination.
b. Discuss each alternative considered, including the Proposed Action.
c. Include the No Action alternative.
d. Identify the preferred alternative.
e. Include appropriate mitigation measures not included in the Proposed Action or alternatives.
f. Limit consideration to a reasonable number of alternatives.

The range of reasonable alternatives evaluated in this EA was identified by the extent to which they met the Proposed Action's purpose and need (replace important railroad bridge) and the following selection criteria:

Selection Criteria 1: Meet the conditions of the DAF for access to and use of VSFB property.

Selection Criteria 2: Meet engineering standards, UPRR safety and operation requirements, and FRA standards.

Selection Criteria 3: Minimize and avoid impacts to sensitive cultural resources, waters of the U.S., and sensitive biological resources to the extent feasible.

2.1 No Action

The 40 CFR 1502.14(c) and DAF EIAP regulations require assessing the No Action Alternative as a measure of the baseline conditions compared to Proposed Action impacts. Under the No Action Alternative, the existing Honda Bridge would continue to deteriorate and remain out of compliance with UPRR design specifications and FRA regulations. Bridge maintenance would no longer suffice to maintain a serviceable and safe structure for the transport of passengers and commodities. Non-compliance with rail safety requirements would result in eventual interruption of rail service or even bridge failure, and not meet the purpose and need of this project. Loss of this bridge could stop rail transport between Santa Barbara and San Luis Obispo, resulting in an overall decrease ridership along the Santa Barbara Subdivision corridor estimated at 1,237,600 passengers and an increase in greenhouse gas emissions of approximately 331,573 metric tons of CO_2e ($MTCO_2e$) by 2043. Maintenance of this rail line would ensure that multiple environmental, human health, socioeconomic, and transportation co-benefits continue for millions of current and future passengers traveling on this corridor, including residents of the 972 state-designated disadvantaged communities and 1,903 low-income communities directly served by the Los Angeles – San Diego – San Luis Obispo Rail Corridor (LOSSAN 2022).

2.2 Other Alternatives Considered and Eliminated from Further Analysis

IAW NEPA and DAF Environmental Impact Analysis Process Regulations (32 CFR Part 989), reasonable alternatives including three bridge designs were considered and eliminated during the planning process (Appendix H profile sheets and Appendix I). These alternatives were evaluated in a comparative form based on selection criteria and summarized in Table 2-1. The Proposed Action is described in Section 2.3. Section 4 summarizes resource impacts that may result from the No Action, four eliminated Alternatives, and Proposed Action.

TABLE 2-1. SUMMARY OF ALTERNATIVES

Alternative	Temporary Impact (acre)	Permanent Impact (acre)	Biological Resource Impacts	Wetland, Waters, Floodplain Impacts	Cultural Resource Impacts	Notes
No Action	None	None	None	None	None	Does not address purpose and need, does not meet Selection Criteria 2
Replace bridge in-kind	Same as Proposed Action	Less than Proposed Action	Less than Proposed Action	Less than Proposed Action	Same as Proposed Action.	Does not address purpose and need, does not meet Selection Criteria 2
Offline alignment	Greater than Proposed Action (wetland, waters, floodplain, and upland)	Greater than Proposed Action (upland). Wetland, waters, and floodplain would be the same	Greater than Proposed Action	Greater temporary impacts than Proposed Action. Permanent impacts would be the same	Greater than Proposed Action	Addresses purpose and need, does not meet Selection Criteria 3
Cellular fill with arches	Same as Proposed Action	Greater than Proposed Action	Greater than Proposed Action	Greater than Proposed Action	Greater than Proposed Action	Addresses purpose and need, does not meet Selection Criteria 3
Long Span	Same as Proposed Action (designs 1, 2, 3)	Greater than Proposed Action	Greater than Proposed Action (designs 1, 2)	Greater permanent impacts than Proposed Action (designs 1, 2)	Same as Proposed Action (designs 1, 2); Greater than the Proposed Action (design 3)	Does not address purpose and need; does not meet Selection Criteria 2, 3
Concrete bridge Preferred Alternative - Proposed Action	20.4	~ 0.08	0.03-acre (0.01 for each pile cap) for Piers. 3, 4, 5 within waters/wetland/ floodplain. 0.05 permanent impact from Abut 1, Abut 7, Piers 2, 6.	0.03-acre of permanent impact; removal of existing bridge pedestals at Bents 6, 7, 8, 9, and 10	One small area (~0.04-acre) of intact cultural resources would be permanently impacted.	Addresses purpose and need, satisfies Selection Criteria 1,2, 3

2.2.1 Replace Bridge In-Kind

This alternative would replace the bridge in-kind using existing footings in one continuous changeout. This alternative would use existing pedestals and therefore have a reduced permanent impact to biological resources within Honda Creek wetland, waters, and floodplain. Temporary impacts for construction and staging would be similar to the Proposed Action; however, construction duration would be less to pile-drive below ground structures. Cultural resource impacts would be the same as the Proposed Action for the temporary crane pad, access routes, and temporary causeway fill.

As-built drawings for the existing pedestal foundations from the late 1800s were not available and the structural integrity could not be verified to meet current seismic and climate change resiliency requirements. This alternative was ruled out based on safety risks associated with using foundations of unknown design and materials. This alternative would not meet Selection Criteria 2 (safety), and would not satisfy the purpose and need.

2.2.2 Offline Alignment

This alternative would replace the existing bridge with a new bridge on an offline east or west alignment. This bridge would span approximately 570 feet parallel to the existing Honda Bridge. The alignment would permanently impact VSFB property. This alternative would require extensive relocation of track north and south of Honda Canyon and result in impacts to cultural resources greater than the Proposed Action. Temporary impacts from construction and staging would be greater than the Proposed Action from additional area needed for the new alignment. Permanent impacts at piers would be the same; however, the new track alignment at the north and south abutments would result in new permanent upland impacts. This alternative would likely occur within a similar or longer timeframe than the Proposed Action and was eliminated due to greater cultural resource impacts and permanent upland habitat impacts on VSFB property. Additionally, an offline alignment of the track would require transfer of real property from SLD 30 to UPRR along the new track alignment. This alternative would not meet Selection Criteria 3 (minimize impacts).

2.2.3 Concrete Cellular Structure with Arches

This alternative would replace the existing bridge with a new concrete cellular arch structure. The new bridge would span approximately 590 feet. Cellular concrete would fill the bridge footprint and have the appearance of a solid wall. There would be five arched openings within the bridge structure. One arch would span Honda Creek proper; however, because the creek meanders at the existing bents, Honda Creek would likely be compromised, permanently affecting bed/bank and coastal salt/brackish marsh habitat. The permanent footprint in wetland, waters, floodplain, and upland habitat would be greater than the Proposed Action. This alternative would likely occur within a longer timeframe than the Proposed Action because of its larger permanent footprint. This alternative was eliminated due to greater permanent impacts to jurisdictional wetlands, waters, and floodplains. This alternative would not meet Selection Criteria 3 (minimize impacts).

2.2.4 Long Span Alternative

This alternative would span Honda Canyon in-line with the current track. Three long span design concepts were evaluated with the intent of minimizing the number of foundation footings within wetland, waters, and floodplains. These three designs were analyzed in HDR's Technical Memorandum presented in Appendix I.

Two of the long span designs were similarly supported by four footings in Honda Canyon's toe slope (two at the north toe, and two at the south toe). The first design would be a steel delta frame consisting of prefabricated steel girders that would be spliced together in the field. This concept would have three

spans with four angled columns attached to large footings at the base of Honda Canyon. The second design would be a concrete arch that would have three spans supported by vertical concrete columns below a continuous deck. Both of these designs would have approximately 20 percent more wetland, waters, and floodplain impacts from permanent placement of large footings at the north and south toe of Honda Canyon. Temporary impacts to wetland, waters, and floodplain would be the same as the Proposed Action due to the location and erection of the delta frames, or for forming the concrete arch.

The third design would be for a single steel truss composed of welded/bolted steel members field spliced together to form a series of triangular panels. Once put together this would form a very long single span. Given the width of the canyon, the span would be approximately 540 feet long. Spans at this length must be very heavy and large to hold their own weight, and failure at any one joint is critical because it could cause complete collapse. For this concept, permanent impacts to wetlands, waters, and floodplains would be less than the Proposed Action because one large abutment foundation would be located at the top of each end of Honda Canyon. However, construction activities required to stage and erect the large truss would require the same temporary impact as the Proposed Action to wetland, waters, and floodplain. In addition, cultural resource impacts from this design would be much larger than the Proposed Action due to very large abutment foundations needed to support the weight of the single truss. The long span alternative for each of these designs were eliminated because it does not meet Selection Criteria 3 (minimize impacts). The delta frame and concrete arch designs would have greater permanent impacts to wetland, waters, and floodplains. The single truss design would cause greater impacts to cultural resources.

In all design scenarios, future inspection and maintenance is a safety concern due to high moisture and chloride environment. Due to the height, length, and high winds at this location future degradation and maintenance is not only challenging for concrete arch structures, but particularly challenging to maintain steel structures after erection. The long span alternative for each of these designs were eliminated because it does not meet Selection Criteria 2 (safety).

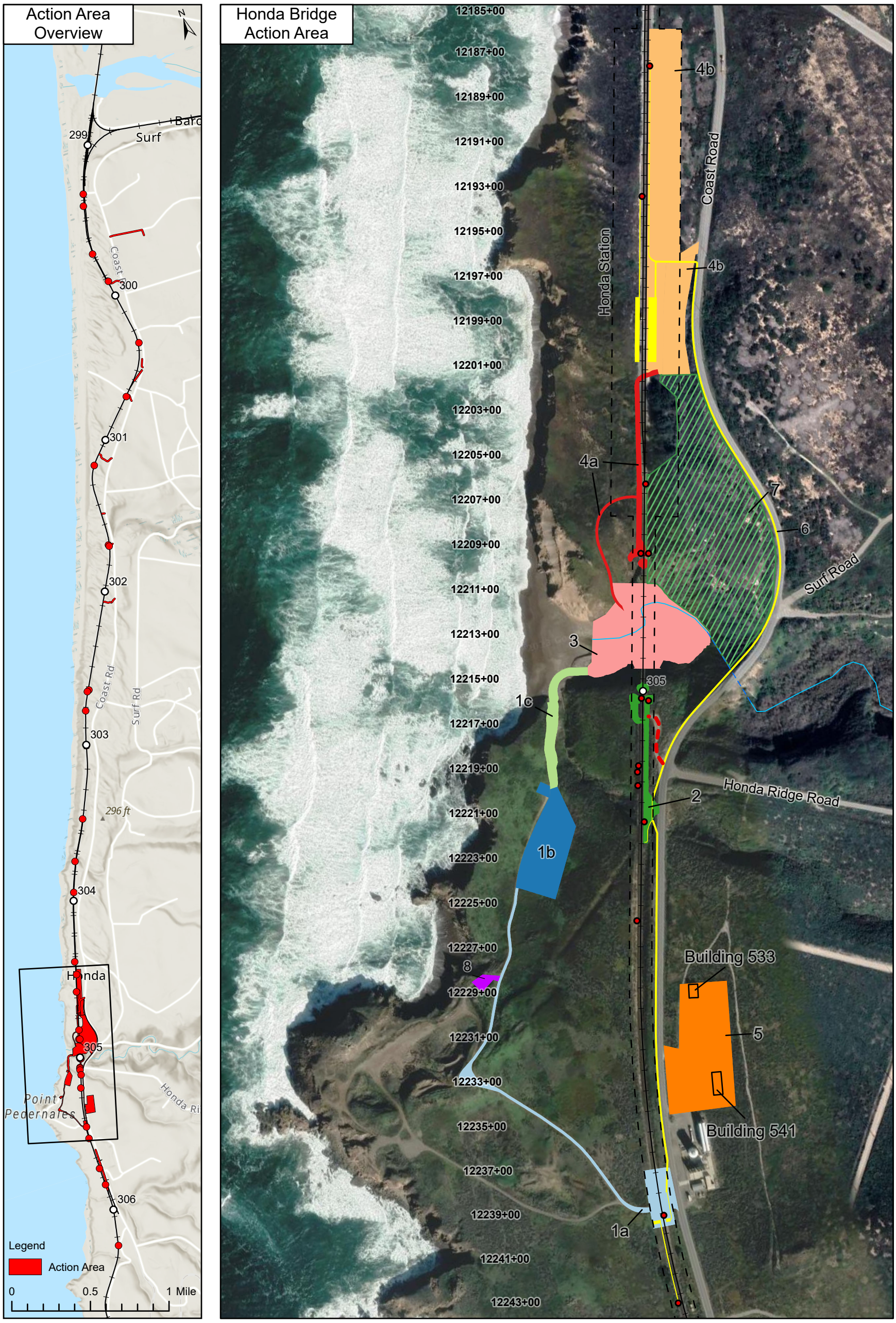
2.2.5 Construction Access Alternatives that were Considered, but not Analyzed:

- We considered use of the existing south abutment road for construction access during the preliminary planning process. We eliminated this route because impacts to cultural resources would be greater than the route chosen in the preferred alternative.
- We considered construction of a temporary wooden access bridge for heavy equipment to cross Honda Creek. This alternative work platform was eliminated because a 600 to 750-ton crane is necessary to reach required bridge height during construction and DPG changeout. Necessary piles to support this type of temporary bridge platform for a crane up to 750 tons would be infeasible and a safety risk.

2.3 Proposed Action

The preferred alternative, or Proposed Action, is to replace the steel bridge and footings with a new concrete bridge and footings. The Proposed Action Area includes 17.6 acres for bridge replacement, construction and staging, and 2.4 acres for fiber optic relocation and replacement. Also included in the Action Area is 10.3 acres for post project restoration and a 0.1-acre archaeological staging area (Figure 2-1).

Figure 2-1. Proposed Action Area



Legend

- UPRR Right of Way
- Railroad Track
- No Vehicle Access
- Honda Creek
- Culvert
- Hand Hole Location
- Milepost

Action Areas

- Beach Access Road (1a)
- South Laydown Area (1b)
- Lower Beach Access Road and Sea Wall (1c)
- South Abutment 7 Access Road (2)
- Bridge Construction Zone (3)
- North Abutment 1 and Pier 2 Access Roads (4a)
- North Laydown Area (4b)
- Laydown/Office Area (5)
- Temporary Fiber Relocation (6)
- Potential Restoration Area (7)
- Archaeological Staging Area (8)

N 0 250 500 Feet

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.61971°W 34.64141°N
Santa Barbara County, California

Action Area Overview
Basemap: ESRI World Topographic
Honda Bridge Action Area
Basemap: ESRI World Imagery

**Engineering Station Numbers displayed on map frame for reference to Bridge Construction Blueprints*

Map Updated: April 19, 2023 04:54 PM by SAF

2.3.1 Bridge Replacement

The Proposed Action includes removal of the existing 13-span, 541-foot Honda Bridge deck plate girder (DPG) and steel towers. The new bridge would be a 6-span, 541.6-foot-long DPG, supported by five newly cast concrete piers (90 feet apart). Each pier (maximum 95 feet high) would consist of concrete columns (7 feet diameter) atop pile caps and anchored belowground by steel piles. Permanent cast-in-place concrete pile caps would cover the steel piles and casings. Each pile cap for Piers 3, 4, 5, and 6 would equal (0.01-acre). Pier 2 pile cap would be equivalent to 0.02-acre.

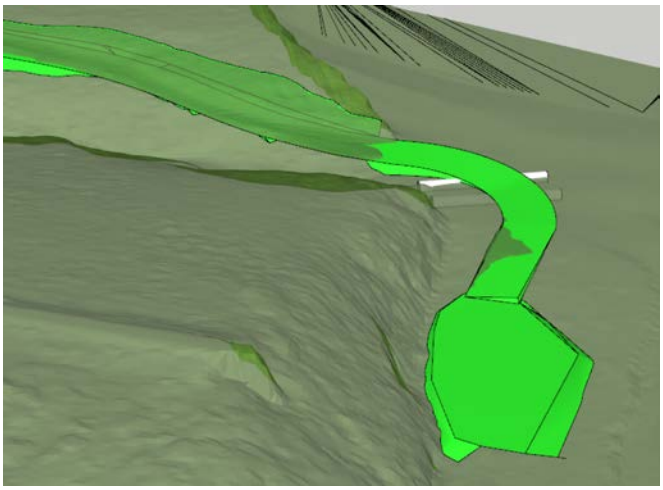
Both ends of the bridge would include new abutments atop concrete caps, which would be supported by retaining walls. Other structures would include a permanent shotcrete wall with rock anchors located on a slope south of proposed Pier 6 and a temporary H- pile and timber lagging wall on the slope north of proposed Pier 2 (Appendix J; Sheet 1 cross-sections).

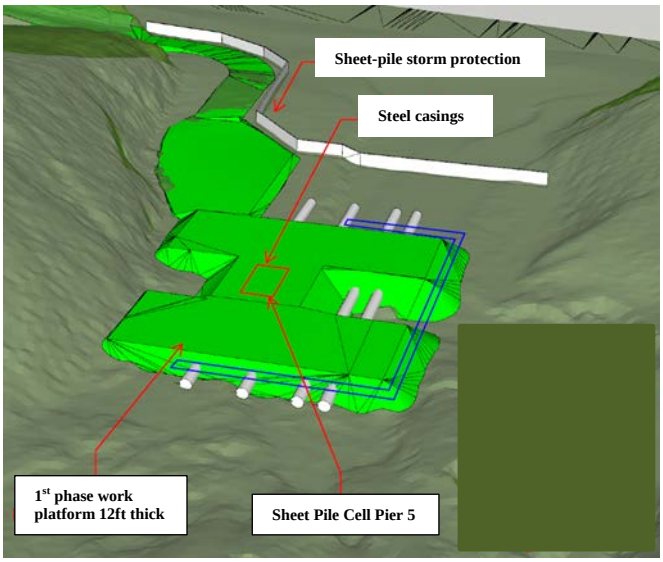
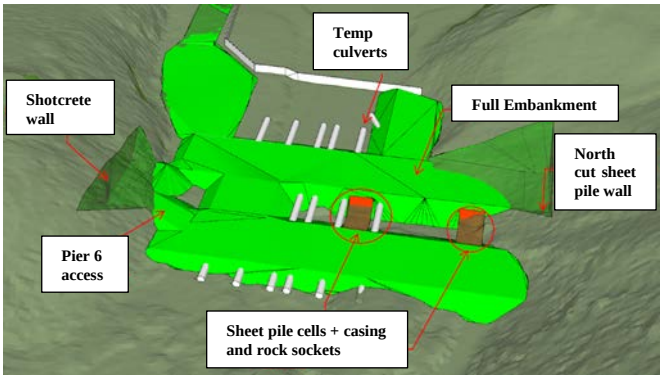
Existing Honda Bridge pedestals at Bents 6, 7, 8, 9, and 10 would be removed. Existing pedestals for Abutment 1, and pedestals at Bents 2 to 5, 11 to 13, and Abutment 14 would remain (Appendix K, final bridge plans).

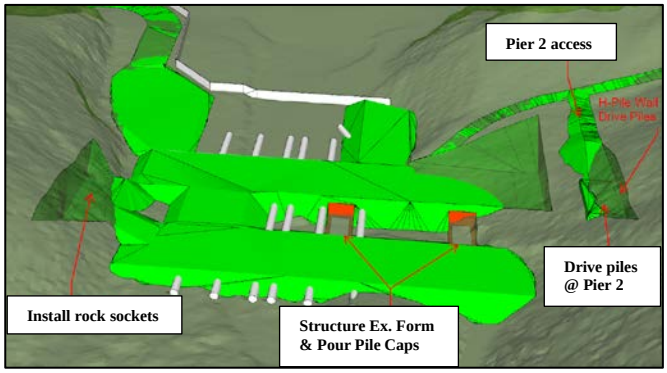
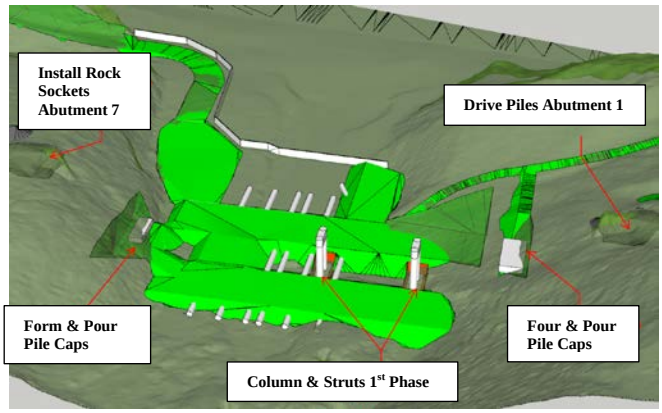
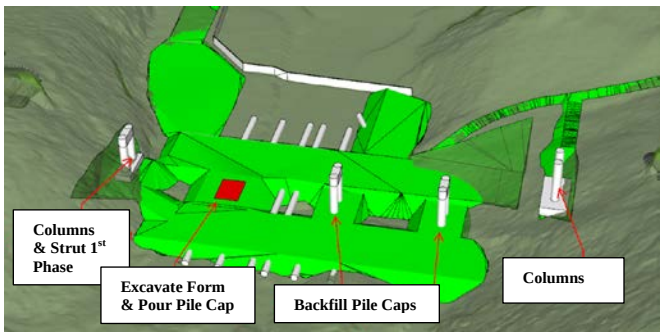
2.3.2 Estimated Construction Schedule

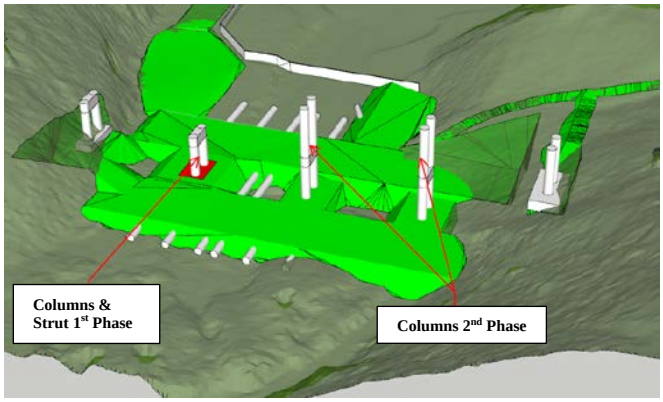
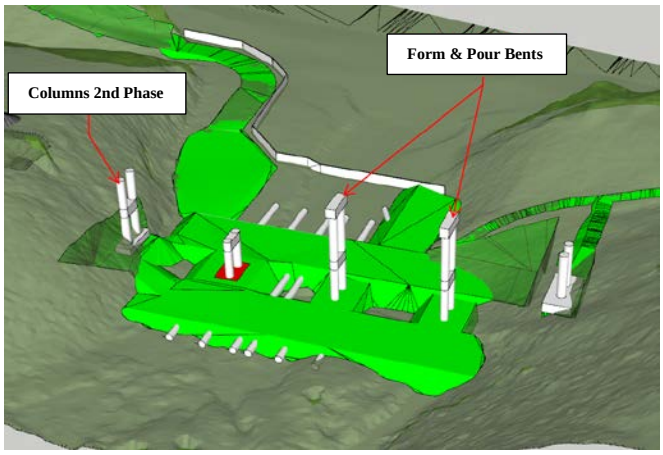
The project is estimated to start early calendar year 2024 and be completed approximately by the end of calendar year 2025 with periodic night work. The schedule includes 12 construction stages (Table 2-2) based on final bridge plans (Appendix K). The Proposed Action is scheduled to impact Honda Creek for one winter season.

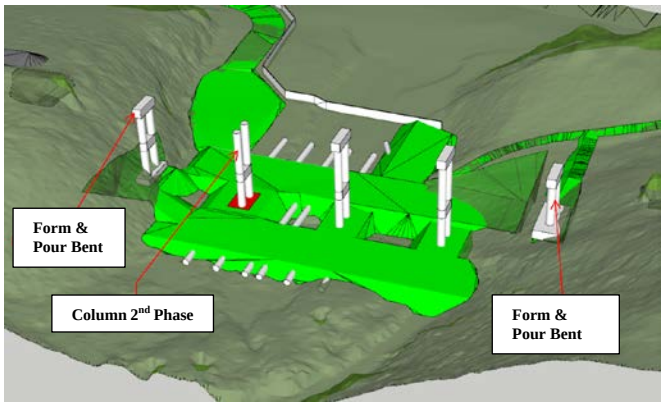
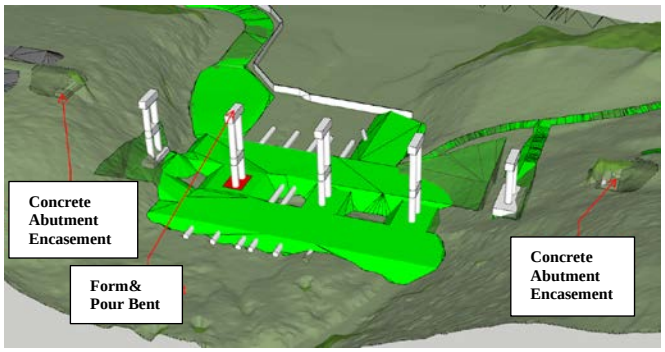
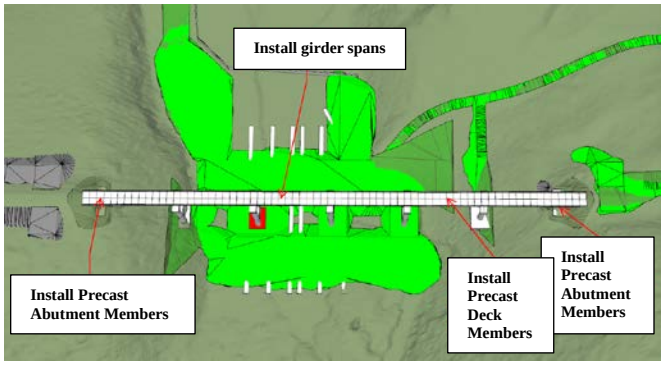
TABLE 2-2. ESTIMATED CONSTRUCTION SCHEDULE BY STAGE

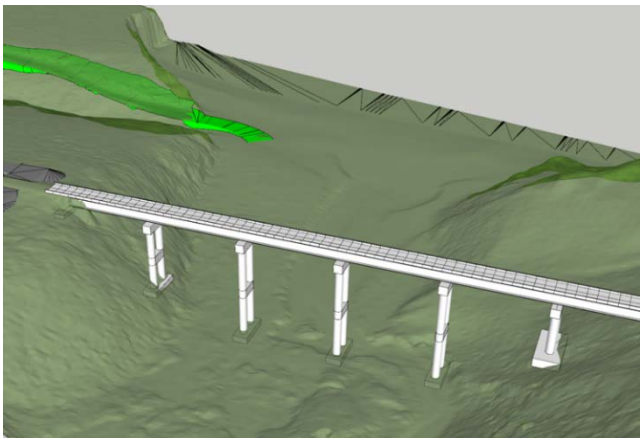
Stage	Estimated Begin Date	Estimated End Date	Activities
Stage 1 – Environmental, utilities, and access roads	January 2024	May 2024	• Install SWPPP, best management practices (BMPs) and environmental protection. • Relocate utilities. • Beach Road: clear vegetation for beach access and staging area, install crossing panels, install ramp culverts, prepare access road/upper access. • Earthwork would include a cut slope to widen the lower beach road for crane access and construct a ramp onto Honda Beach.
			

<table>
<tr><th>Stage</th><th>Begin Date (approximate)</th><th>End Date (approximate)</th><th>Activities</th></tr>
<tr><td>Stage 2 – Shoring, Construct Work-Pad/ Crane Pad, Deep Foundation</td><td>May 2024</td><td>July 2024</td><td rowspan="2">The Proposed Action is scheduled to be in Honda Creek starting in Stage 2.
Install temporary sheet-pile storm protection stormwater dissipator.
Install sheet pile cell at Pier 5.
Install first phase of temporary causeway fill and culverts (south).
Starting on the southern-most portion of Honda Creek floodplain, existing pedestals at bents 8 to 11 would be surrounded by 2,000-pound sand-filled super sacks.
Install fill and culvert pipes within super sack area.
Drill casing and rock socket for Pier 5.</td></tr>
<tr><td colspan="3"> 
</td></tr>
<tr><td>Stage 3 – Finish constructing work-pad/ crane pad, shoring, and deep foundation</td><td>July 2024</td><td>October 2024</td><td rowspan="2">Install second phase of temporary causeway fill and culverts by completing supersack wall towards the edge of the north slope.
Prior to installing northernmost culverts, allow Honda Creek to flow freely through previously installed (Stage 2) southernmost culverts.
Construct access ramp to Pier 6.
Drive sheet pile cells for Piers 3, 4.
Install soil nail and shotcrete shoring at Pier 6.
Install north cut sheet pile wall with tiebacks (crane pad).
Install casing & rock sockets Piers 3, 4.
The temporary causeway fill would be raised to the final elevation required to cover the culverts. The fill would extend to the north cut sheet pile wall, maintaining elevation, to allow the ~600- ton (660 US ton) crane necessary during DPG changeout.</td></tr>
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Stage	Begin Date (approximate)	End Date (approximate)	Activities
Stage 4 – Access roads, deep foundations, shoring, earthwork structures	August 2024	November 2024	• Cut/fill upper access at north access roads and Abutment 7 access road. • Abutment 7 install crossing panels. • Install rock sockets & pile for Pier 6. • Drive piles for Pier 2. • Install pile & lagging shoring wall Pier 2. • Excavate Pier footings for 3, 4. • Form & pour concrete pile caps Piers 3, 4. • Install temp bents for span assemblies.
			
Stage 5 – Structures & deep foundations	November 2024	January 2025	• Form & pour concrete pile caps Pier 2. • Form & pour column 3, 4 lift 1, cure. • Drive pile Abutment 1. • Drill sockets Abutment 7.
			
Stage 6 -Deep foundations, earthwork, & structures	December 2024	February 2025	• Excavate Pier 5, backfill footings 3, 4 & 2, 6. • Cast-in-place concrete pile caps Pier 5. • Form, pour, cure columns for 2, 6 lift 1.
			

<table>
<tr><th>Stage</th><th>Begin Date (approximate)</th><th>End Date (approximate)</th><th>Activities</th></tr>
<tr><td>Stage 7 – Structures</td><td>January 2025</td><td>March 2025</td><td rowspan="2">Form, pour, cure column for Pier 5 lift 1.
Form, pour, and cure column for Pier 3, 4 lift 2.</td></tr>
<tr><td colspan="3"> 
</td></tr>
<tr><td>Stage 8 – Earthwork & structures</td><td>March 2025</td><td>April 2025</td><td rowspan="2">Form, pour column 6 lift 2.
Cure column 2, 6 lift 2.
Form, pour bent caps 3, 4.
Cure bent 3, 4.
Backfill footing 5.</td></tr>
<tr><td colspan="3"> 
</td></tr>
</table>

Stage	Begin Date (approximate)	End Date (approximate)	Activities
Stage 9 - Structures	April 2025	June 2025	• Form, pour, cure column 5 lift 2. • Form, pour, cure bent caps 2, 6.
			
Stage 10 – Structures	May 2025	June 2025	• Form, pour, cure bent 5. • Form, pour, cure Abutment 1 and 7 encasement.
			
Stage 11 – Structures, DPG changeout	June 2025	August 2025	• Transport and set 18000 Manitowoc Crane. • Deliver all spans. • Prepare for DPG changeout. • DPG changeout.
			

Stage	Begin Date (approximate)	End Date (approximate)	Activities
Stage 12 – Disposal, Site Restoration, demobilize	August 2025	November 2025	• Remove substructure elements. • Backfill substructure • Process/dispose materials and debris. • Remove causeway, temp culverts, temp sheet pile storm protection. • Restore storage areas. • Re-seed restore. • Remove temporary track panels. • Demobilize from project site.
			

2.3.3 Project Equipment

The Proposed Action would require a variety of equipment that would be used for construction. Table 2-3 provides a list of equipment that was used to analyze impacts to air quality and transportation; however, equipment brands and models may vary depending on availability.

Most equipment and materials would be staged at the south laydown area, but larger equipment would be staged by the lower beach access ramp. Large cranes would be moved off the temporary causeway daily and stationed above the flood height of a 2-year storm event near the base of the lower beach access ramp. For large storms (> 2-year event), all equipment would be moved out of the 100-year floodplain within a 2-to-3-hour period prior to start of rain event.

TABLE 2-3. CONSTRUCTION EQUIPMENT & ASSUMPTIONS ASSOCIATED WITH THE PROPOSED ACTION

Equipment Type, Brand & Product	Function/ Task	Estimated Duration
600 to750-ton crane (or similar size), Manitowoc Lattice Boom Crawler Crane 18000	Lower elevation of bridge – DPG changeout/curfew, switch- out, assist to set girders, unload and Stage 2 girder pans, erect spans, demo existing structure	Stage 11
200-ton crane, Manitowoc Lattice Boom Crawler Crane 14000	Lower elevation of bridge – drive H-pile, vibrate temp sheet pile for storm protection, north cut sheet pile wall and shoring cells, assist during construction of columns/struts/ bents and reinforcing installation, DPG changeout assist – install Abutment 1 and assemble span	Stages 2-6
100-ton crane, Manitowoc Lattice Boom Crawler Crane 12000	Drive pile for Abutment 1 and Pier 2	Stages 4 and 5
Hydraulic drilling rig, Soilmec SR 90	Drill and install casing at Piers 3, 4, 5. Drill rock socket at Pier 6. Drill shaft at Abutment 7 retaining wall	Stages 2, 5, 6
Hydraulic vibratory driver/extractor, ICE Model 44-50	Drive temp sheet pile storm protection, stream curtain, and sheet pile cells for Piers 3, 4, 5	Stages 2 3; ~12-14 weeks
Single-acting diesel hammer, ICE model I- 30, I-36, or I- 46	Drive H piles for Piers 2-6; Abutment 1 & Abutment 7	Stages 3, 4, 5; ~12-14 weeks

2.3.4 Bridge Construction and Staging

Project construction activities would require access improvements and temporary staging areas on UPRR and VSFB property. Approximately 17.6 acres of construction and staging activities would occur in the Action Area (Table 2-4).

TABLE 2-4. BRIDGE CONSTRUCTION AND STAGING

Site Name	Ownership	Action Area (Ac.)
Beach Access Road	UPRR and VSFB	1.4
South Laydown Area	VSFB	1.7
Lower Beach Access Road	VSFB	0.6
South Abutment 7 Access Road	UPRR and VSFB	0.6
Bridge Construction Zone	UPRR and VSFB	3.5
North Abutment 1 and Pier 2 Access Roads	UPRR and VSFB	0.7
Northern Laydown Area	UPRR and VSFB	5.7
Laydown/Office Area	VSFB	3.4
TOTAL		17.6

2.3.4.1 Beach and Abutment Access Roads

Honda Beach is accessible from Coast Road via an existing dirt beach road. The road starts 0.4-mile south of Honda Bridge, west of Coast Road, and runs approximately 2,900 feet to the beach. This road would provide access to the south laydown area and bridge construction site. The road must be at least 12 feet wide for construction equipment. Road improvements would include vegetation clearance from the inland side to widen the road where necessary and road base.

The existing beach access road located north of the south laydown area would be widened to 35 feet to allow for crane access onto the beach area/canyon bottom. Road widening would require temporary slope protection along the cut slope face. The slope face needs to be near vertical to protect sensitive cultural resources on the upper terrace, west of the cut slope.

A temporary 35-foot-wide ramp would extend the lower beach access road to the bridge. Fill acquired from the south laydown area would be stabilized by road base. Temporary sheet pile storm protection (approximately 470 feet long, 30-feet high total, 10 feet above-ground) would protect the beach access ramp and temporary causeway fill from high tides and waves. A hydraulic vibratory driver would install the sheet pile approximately 20 feet below ground. One 60-inch diameter culvert, approximately 60 feet long would be installed under the lower beach access road ramp to convey runoff from an ephemeral drainage.

A separate project occurred in the same area: A DAF culverts repair project was the subject of a separate EA (Honda Creek Culverts Repair and Corrosion Prevention at Vandenberg Air Force Base, California), which resulted in a FONSI/FONPA. Contractors repaired two 13-foot-diameter metal culverts under Coast Road by lining them with smaller10-foot diameter high density polyethylene sleeves. Project construction was from August 2022 to January 2023. A temporary 910-foot-long, 24-foot-wide beach access road extension was constructed to the repair site. This Proposed Action would utilize the same access road west of the bridge but would require an additional width of 6 feet (minimum) for crane access.

Temporary and permanent construction and maintenance access to the south abutment requires a new connection from Coast Road to avoid sensitive resources. A permanent 20-foot-wide access road would be constructed parallel to the railway in disturbed habitat along the eastern railway ballast. The new road would access the east side of Abutment 7 and cross the tracks to access the west side. These access roads would be cleared of vegetation, filter fabric or straw would cover the native soil and railway ballast, and approximately 1,600 cy of fill would be acquired from the south laydown area. Maximum fill depth would be approximately 5 feet for the east road and 8.5 feet for the west road. One 30 by 30-foot temporary crane pad would be constructed at the terminus of each access point. Exposed soil along the road slope would be stabilized or seeded after construction and prior to the rainy/winter season to prevent erosion (Appendix J, Sheet 4 cross-section).

Abutment 1 and Pier 2 would be accessed from Coast Road north of the bridge. From the existing access road, a new 20-foot-wide access road west of the railway ballast would extend toward Abutment 1 and split into a 12-foot-wide Pier 2 access road. Abutment 1 access road would extend along the west side of the abutment and would accommodate one small 30-foot by 30-foot crane pad. Due to sensitive resources, construction of Pier 2 access road requires addition of fill material with minimal vegetation clearance, and no excavation is allowed. The existing substrate would have minimal disturbance and no metal track machinery is allowed. Upon project completion, Pier 2 access road would be reseeded with native vegetation.

2.3.4.2 Laydown Areas

Two laydown areas are proposed for temporary equipment staging, storage, parking, stockpiling, and a fill source. The south laydown area, south of Honda Canyon, is located along the existing beach access road. Approximately 14,500 cy (at a depth up to 6 feet) of fill would be taken from the south laydown area to construct the temporary causeway. The north laydown area is north of Honda Canyon, adjacent to and west of Coast Road. The fill source area is approximately 0.5-acre (maximum 2 feet depth), with a contingency area of 0.8-acre and is estimated to generate approximately 7,300 cy of fill for Abutment 1 and Pier 2 access roads.

2.3.4.3 Bridge Construction Zone

A temporary crane pad would be required on the north side of Honda Creek northwest of Pier 3. The crane pad would require excavation of the south-facing hill slope and would be stabilized by the north cut sheet pile wall (Table 2-2; Stage 3). A small crane pad to access area east of Pier 2 would be located east of the bridge adjacent to Pier 3. This crane pad would be located on the temporary causeway, consisting of fill material acquired from excavation of the south laydown area. The temporary causeway would be constructed across Honda Canyon on the western and eastern sides of the bridge to provide equipment and pedestrian access to proposed Piers 3, 4, 5, and 6 (Figure 2-2). The temporary causeway would be accessible from the lower beach access road. Fill required for temporary causeway construction would be acquired from the south laydown area. The ground surface elevation at the toe slope is estimated at 12.5 to 18.0 feet (NAVD 88) and the top elevation of the causeway is estimated at 25 feet (NAVD 88). Volumes for the temporary causeway fill are estimated to be approximately 17,000 cy of fill and 1,600 cy of cut.

To protect the eastern boundary of the construction site during high flow events temporary fill would be surrounded by supersacks, and/or hardened with a 1.5:1 slope of rip rap, or other slope protection material approximately 12 feet above Honda Creek's flow line. Stormwater would be conveyed through the construction area via six temporary corrugated metal pipes (CMPs;72-inch diameter, 190-200 feet long) that would run beneath the temporary causeway fill. The CMPs are designed to pass a 2-year event and are modelled to withstand a 5-year event (with backwater upstream). The CMPs would be covered by approximately 1-foot of fill.

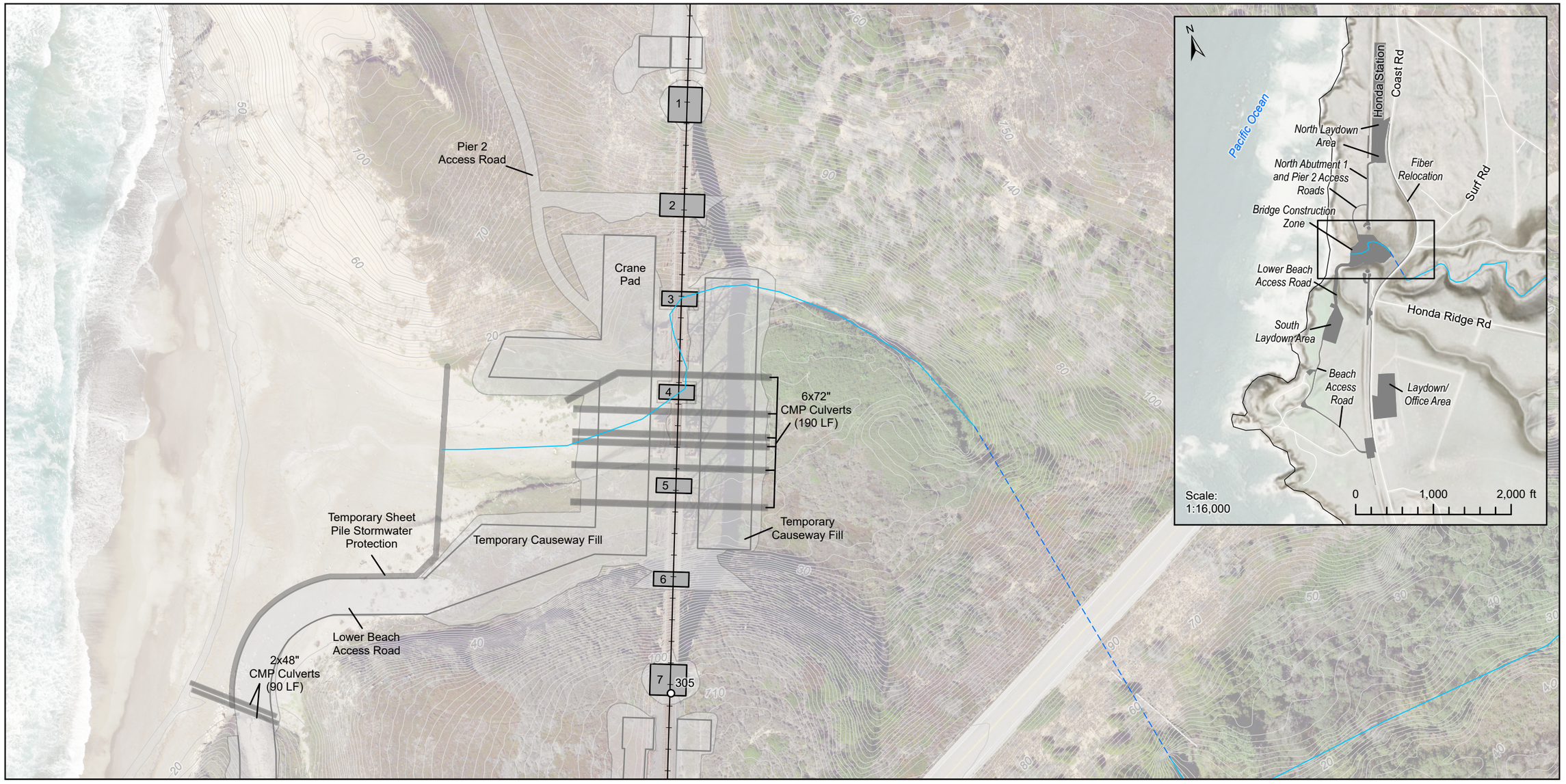
The temporary causeway would be designed to allow overtopping from potentially heavy storm events (designed for an approximate 10-year event) by using one-foot-thick layers of fill material and fabric under a protective rip rap layer. Other protective materials may include additional layers over the top and sides of the temporary causeway fill for water quality protection such as high-tensile steel wire (Tecco® mesh), chain link, coconut fiber blankets (Geocoir®), Basetrac®, or equivalent.

2.3.4.4 Laydown/Office Area

The laydown/office area is south of Honda Ridge Road, east of and immediately adjacent to Coast Road. The area is approximately 3.4 acres of land that has been previously disturbed from development and includes SLD 30 Buildings 533 and 541. This area is currently comprised of 0.3-acre of building footprints, 1 acre of dirt roads and parking, and 2.1 acres of disturbed vegetation. It would be used for temporary offices and a construction yard, all of which would be removed once construction is complete.

Water trucks used for dust control would be filled from an existing fire hydrant near Facility 980, from Ordnance Road, located 5 miles north of Honda Bridge (Figure 2-3, 'Access 0'). Approximately 18 acre-feet of water is estimated for this use.

Figure 2-2. Bridge Construction Zone



Legend

- Construction Footprint
- Piers and Abutments
- Project Components
- Railroad Track
- Milepost
- Honda Creek
- Culvert
- High Tide Line
- Mean High Water
- Ordinary High Water Mark

N

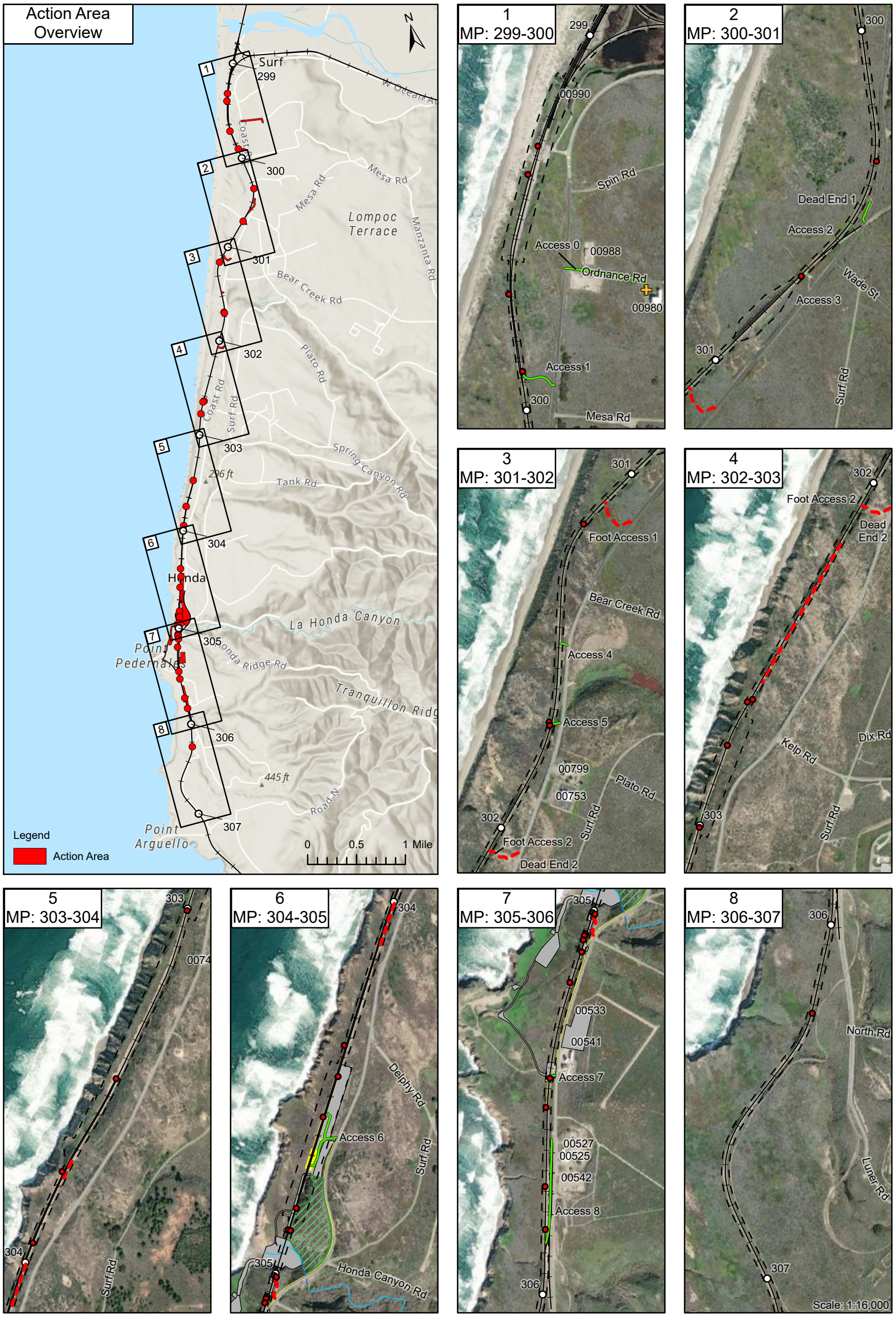
0 50 100 Feet

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.63554°W 34.60809°N
Santa Barbara County

Contour Interval: 2-foot
Imagery Source: VSFB, 2019 (Controlled Unclassified Information)

Map Updated:
November 17, 2023 03:24 PM by SAF

Figure 2-3. Fiber Optic Relocation and Replacement



Legend

- UPRR Property
- Temporary Fiber Relocation
- Potential Restoration Area
- Action Area
- Railroad Track
- Honda Creek
- Culvert
- Truck Access
- Trail Access
- No Vehicle Access
- Fire Hydrant
- Hand Hole Location
- Milepost

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.62086°W 34.6332°N
Santa Barbara County, California

Action Area Overview
Basemap: ESRI World Topographic
Inset Maps (1-8)
Basemap: ESRI World Imagery

Map Updated: April 20, 2023 09:08 AM by SAF

2.3.5 Fiber Optic Relocation and Replacement

A critical fiber optic connection between north and south VSFB extends along UPRR property and across the Honda Bridge. It is important to the DAF mission that no interruption to the fiber optic connection occurs due to the implementation of this Proposed Action. Utility personnel would temporarily relocate the lines into conduit along the shoulder of Coast Road before construction begins. Personnel may mow up to a 6-foot-wide strip (0.6-acre) along the shoulder and temporarily bury the cable at driveway crossings. Personnel would secure the conduit behind existing guardrails, temporary K-rails, or similar roadway barriers.

Utility companies would require two jack and bore pits (maximum 38 x 15 feet and 7 feet deep) and two receiving pits (maximum 20 x 15 feet and 7 feet deep) to complete the rerouting: one each adjacent to the track near the north laydown area and near the intersection of Coast Road/ beach access road. A new permanent hand hole would be placed at the north laydown area jack and bore pit to allow utility company access. On the east side of the track near north laydown area, excavation along the existing fiber optic alignment would be necessary to connect temporary fiber lines.

As part of the Proposed Action, utility companies may replace up to 7 miles of existing fiber optic line (from MP 299 at the northern extent through MP 307). Minimal ground disturbance would occur at existing hand hole locations and access trails (Figure 2-3). Additional excavations (approximately 3 x 5 feet and up to 5 feet deep) may be required between hand holes to expose conduit in potential problem areas, all of which would occur along the historic trench alignment. Contractors would use existing access routes depicted in Figure 2-3 to complete this work. No access improvements are proposed as part of this action.

2.3.6 Emergency Response for the North Bank of Honda Creek

Emergency permits were approved shortly after high floods on January 9, 2023 eroded the north bank of Honda Creek exposing Honda Bridge footings [G-9-23-0009 (CCC), SPL-2023-00042-TS (USACE), and Certification Project No. 34223WQ02 (RWQCB)]. Immediate action was necessary to ensure that the bridge structure would not fail. The emergency project included removal of eroded material from the floodplain, creation of a temporary causeway across Honda Creek for equipment and personnel to access the slope failure area, placement and compaction of fill material in the area of the eroded toe slope along the north bank, and temporary placement of permeable rock for stormwater protection.

2.3.7 Post-Project Restoration

After bridge construction is complete, UPRR would remove and replace all temporary fill/cut material and stabilize temporarily disturbed areas with native vegetation or biodegradable erosion control materials. All temporarily impacted wetlands, waters, and riparian vegetation (up to 2.0 acres) would be restored at a 1:1 ratio to their pre-project conditions or better. Up to 10.3 acres of nonnative Acacia habitat within the Honda Creek watershed was included in the Action Area for potential restoration (Appendix L).

2.3.8 Archaeological Staging Area

An abandoned three-sided concrete bunker with no top approximately 1,500 feet southwest of Honda Bridge would be used for processing material during cultural resource recovery activities. A water buffalo with pump will provide wash water for material screening. Access to the site would be over the existing beach access dirt/gravel road.

2.3.9 Environmental Protection Measures

As part of the Proposed Action, UPRR would implement the following avoidance and minimization strategies that would reduce air emissions, reduce impacts to biological resources including nesting birds, wetlands, waters of the U.S. and State, and special status plants and animals, and reduce effects to cultural resources. Other strategies include proper management of hazardous materials and solid waste, and to ensure human health and safety.

2.3.9.1 Air Quality

1. All portable diesel-powered construction equipment greater than 50 brake horsepower (bhp) shall be registered with the state's portable equipment registration program OR shall obtain an APCD permit. Fleet owners of diesel-powered mobile construction equipment greater than 25 hp are subject to the California Air Resource Board (CARB) In-Use Off-Road Diesel-Fueled Fleets Regulation (13 California Code of Regulations (CCR) 2449), the purpose of which is to reduce oxides of nitrogen (NOx), diesel particulate matter (DPM), and other criteria pollutant emissions from in-use off-road diesel-fueled vehicles. Off-road heavy-duty trucks shall comply with the State Off-Road Regulation. For more information, see www.arb.ca.gov/msprog/ordiesel/ordiesel.htm.
2. Fleet owners of diesel-fueled heavy-duty trucks and buses are subject to CARB's On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation (13 CCR 2025), the purpose of which is to reduce DPM, NO_x and other criteria pollutants from in-use (on-road) diesel-fueled vehicles. For more information, see www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm.
3. All commercial off-road and on-road diesel vehicles are subject, respectively, to 13 CCR 2449(d)(3) and 2485, limiting engine idling time. Off-road vehicles subject to the State Off-Road Regulation are limited to idling no more than five minutes. Idling of heavy-duty diesel trucks during loading and unloading shall be limited to five minutes, unless the truck engine meets the optional low-NOx idling emission standard, the truck is labeled with a clean-idle sticker, and it is not operating within 100 feet of a restricted area.
4. Diesel equipment meeting the CARB Tier 3 or higher emission standards for off-road heavy-duty diesel engines should be used to the maximum extent feasible.
5. On-road heavy-duty equipment with model year 2010 engines or newer should be used to the maximum extent feasible.
6. Diesel powered equipment should be replaced by electric equipment whenever feasible. Electric auxiliary power units should be used to the maximum extent feasible.
7. Equipment/vehicles using alternative fuels, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel, should be used on-site where feasible.
8. Catalytic converters shall be installed on gasoline-powered equipment, if feasible.
9. All construction equipment shall be maintained in tune per the manufacturer's specifications.
10. The engine size of construction equipment shall be the minimum practical size. The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time.
11. Construction worker trips should be minimized by requiring carpooling and by providing lunch onsite.
12. Construction truck trips should be scheduled during non-peak hours to reduce peak hour emissions whenever feasible.
13. Proposed truck routes should minimize to the extent feasible impacts to residential communities and sensitive receptors.

14. Construction staging areas should be located away from sensitive receptors such that exhaust and other construction emissions do not enter the fresh air intakes to buildings, air conditioners, and windows.

2.3.9.2 Biological Resources

1. All Avoidance and Minimization Measures identified in the BO (Appendix C) and Special Condition and measures identified in the CCC Staff Report (Appendix F) shall be implemented as part of the Proposed Action.
2. Qualified biologists shall brief all project personnel prior to their participating in construction activities. At a minimum, the briefing would include a description of the project components and techniques, a description of the listed species occurring in the project area, and the general and specific measures and restrictions to protect the species during implementation of the project.
3. Construction Plans would show boundary of work areas. Prior to start of work, all boundaries shall be marked using construction fencing, flagging or other means to ensure project personnel leave all wetlands, waters, riparian, and upland vegetation outside of the Action Area undisturbed.
4. Prior to start of construction activities, qualified biologist shall determine limits of exclusionary wildlife fence within the bridge construction zone. This fence shall exclude California red-legged frogs from the Action Area during construction. Fence could be open during inactive construction periods to prevent entrapment of frogs and other wildlife.
5. A qualified biologist shall be present during initial vegetation disturbance (including but not limited to mowing, trimming, clearing, or grubbing), and any ground disturbing activities (including but not limited to road, temporary causeway fill, or crane pad construction). The qualified biologist shall document compliance with all BMPs and environmental compliance items for the project. The environmental monitor shall be qualified to move wildlife from the Action Area as needed (but would only move California red-legged frogs if USFWS-approved).
6. USFWS-approved biologist(s) shall be present onsite during all construction activities occurring in California red-legged frog habitat. Prior to the start of daily construction activities in the riparian zone, biologist(s) shall survey the work sites for California red-legged frogs, checking beneath all parked vehicles and heavy equipment before project activities commenced. If a California red-legged frog is observed within a designated work area and cannot be avoided, all work shall stop until the animal can be relocated by a USFWS-approved biologist or until it has left the work area of its own accord. California red-legged frogs captured during surveys or construction activities shall be relocated to the nearest suitable habitat outside of the Action Area but within the Honda Creek watershed and no more than 2 miles from the capture site. California red-legged frogs may only be captured by hand or dip net and transported in buckets separate from other species. When capturing and removing California red-legged frogs from the project area, the USFWS-approved biologist(s) must minimize the amount of time that animals are held in captivity. In addition, California red-legged frogs must be maintained in a manner that would not expose them to temperatures or any other environmental conditions that could cause injury or undue stress (USFWS 2015). To ensure that diseases are not conveyed between work sites, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force shall always be followed (DAPTF 1998).
7. All trash shall be removed from the site daily or secured in a predator-resistant container to reduce the likelihood of attracting potential California red-legged frog predators to the work site.
8. A qualified biologist shall develop a contingency plan approved by USFWS and 30 CES for the recovery and salvage of tidewater gobies, California red-legged frogs, and other special status wildlife in the event of a local toxic spill or accidental dewatering of their respective habitats.

9. Prior to commencement of construction, UPRR shall prepare and implement a Habitat Mitigation and Management Plan (see BO; Appendix C). Impacts to California red-legged frog habitat shall be offset at a 2:1 ratio of creation and enhancement (area of created or enhanced habitat to impacted habitat). Appropriate restoration and enhancement activities shall include planting appropriate native species, returning Honda Creek and adjacent wetlands and uplands to pre-project conditions, and/or providing habitat enhancement through the creation of additional habitat along lower Honda Creek.
10. Biologist(s) shall be present onsite during all construction activities occurring in southwestern pond turtle habitat. Prior to the start of daily construction activities, the biologist(s) shall survey the work area for southwestern pond turtles, checking beneath all parked vehicles and heavy equipment before project activities commence. If a southwestern pond turtle is observed within a designated work area and cannot be avoided, all work shall stop until the animal can be relocated or until it has left the work area of its own accord.
11. A qualified biologist will conduct preconstruction surveys for general wildlife including, northern California legless lizard, southwest pond turtle, two-striped garter snake, and Arguello salamander prior to mowing or ground disturbance that may affect suitable habitat. If found, the qualified biologist would capture and relocate individuals to appropriate habitat outside the project area and would clean containers and equipment to reduce risk of disease transmission. Southwestern pond turtles and two-striped garter snake shall be relocated to the nearest suitable habitat outside the Action Area, but within the Honda Creek watershed.
12. Construction areas would be monitored by a qualified biologist between February 15 and August 15 for nesting bird species no more than 14 days prior to commencement of construction activities. UPRR shall notify 30 CES/CEI within 24 hours if an active nest of special status bird species identified within 300 feet of construction activities (500 feet for raptors) and develop an appropriate action plan specific to each nest occurrence.
13. At a minimum, a qualified biologist shall establish a 50 to 300-foot nesting buffer if any nests with eggs or chicks are found within 300 feet of construction activities. All buffers shall be marked with high visibility flagging or fencing. No construction activities shall be allowed within the buffers unless the young have fledged, the nest fails, or approved by a qualified biologist. All work within 300 feet of the nest shall be monitored by a qualified biologist. The biologist shall immediately cease all project activity in the immediate area if the nesting birds show any signs of disturbance or distress.
14. Preconstruction survey reports shall be prepared upon completion of nesting bird surveys and submitted to 30 CES/CEIEA. Reports shall discuss fencing or flagging of buffer zones and make recommendations for additional monitoring requirements. A map of the project site and nest locations shall be included with all reports.
15. A qualified biologist shall survey potential beach layia habitat within the Action Area annually. Known beach layia occurrences shall be fenced prior to any ground disturbance for the duration of the project. If beach layia is found within the Action Area and avoidance is not practicable, seed shall be collected, and topsoil shall be salvaged and replaced upon project completion. Seeding with other native plant taxa shall be kept to a minimum to ensure that beach layia seeds are not outcompeted, and nonnative weed control shall be implemented during the five-year restoration monitoring period.
16. Prior to project completion, all potential beach layia habitat impacted within the Action Area north of Honda Bridge shall be restored with salvaged topsoil or a native central dune scrub seed mix.

17. All temporarily disturbed areas, including temporary access roads, shall be restored or revegetated (at a minimum) to their original condition, per the Restoration Plan (Appendix L).
    a. Disturbed wetlands, waters, and riparian areas shall be restored to pre-project conditions. Native riparian vegetation shall be planted from cuttings and/or container stock and seed. Live stake planting shall occur when soil moisture is high, in the fall or winter following the completion of construction. Riparian areas shall be reseeded with seed mixes specified in the Restoration Plan and weed control shall be implemented.
    b. Disturbed central coastal scrub and central coastal scrub/iceplant shall be seeded with at least six species from seed mixes specified in the Restoration Plan and weed control shall be implemented.
    c. Disturbed iceplant habitat north of Honda Canyon shall be seeded with central dune scrub seed mix specified in the Restoration Plan. Soil shall be salvaged from open sandy areas within iceplant that contain native annuals. Topsoil shall be stockpiled and replaced upon project completion and weed control shall be implemented.
    d. All special status plants shall be counted and mapped prior to construction, and seed shall be collected from within and adjacent to the Action Area. Seed shall be planted in appropriate habitat during site restoration activities.
18. Riparian vegetation in temporary work areas shall be cut between 2 to 6 inches, with roots and no less than 2 inches of stem remaining to allow plants to re-grow when construction is complete and to provide permanent erosion control. If practicable, clearing, grubbing, pruning, and mowing shall occur outside of bird nesting season (February 15 to August 15). If vegetation reduction needs to occur during the nesting season, pre-construction nest surveys shall be conducted.
19. Weed Seeds - Prior to arriving on VSFB personnel shall clean all equipment and vehicles (trucks, bulldozers, cranes, etc.) of seeds and/or mud and remove and clean any skid plates to prevent weed introduction. Personnel shall especially ensure wheels, undercarriages, and bumpers are clean. Any equipment or vehicles with weed seeds and/or caked on mud shall be cleaned off-site at a dedicated washing station.
20. Weed Seeds - On-site: Qualified personnel shall brief all contractors and personnel on vehicle cleaning measures. UPRR will maintain a vehicle checklist and record inspection results. Equipment shall be cleaned of weed seeds frequently, especially wheels, undercarriages and bumpers.
21. Weed Seeds - Prior to leaving the Action Area personnel shall clean all vehicles that have caked-on dirt or mud with hand tools (i.e., bristle brushes, brooms) at a designated exit area. Operators shall thoroughly brush vehicles with accumulated dry dusted dirt or air-blast (no caked-on dirt/mud) vehicles. Operators may subsequently wash vehicles at the closest car wash (AAFES Car Wash) or other approved wash area.
22. All fill used for temporary access roads and work areas shall come from the Proposed Action Area (north or south laydown) to prevent movement or introduction of weed seeds.
23. All contractors shall adhere to conditions set forth in CWA Section 401 and 404 permits.
24. Water quality parameters including pH and turbidity during normal flow events shall be measured prior to the commencement of the project to determine baseline condition. Measurements shall occur throughout the project's duration and water quality shall be maintained at or above pre-project levels. Visual water quality assessments shall be conducted daily during active work that may affect water quality. During concrete installation, pH shall be monitored daily, and/or during a pour if standing water is present in or adjacent to the concrete action area.

25. Appropriate BMPs shall be used at the site to prevent sediment pollution from leaving the site. Erosion control measures shall include both temporary and permanent protection, including but not limited to installation of silt fence, biodegradable straw wattles or erosion control fabrics, and hydroseed. No monofilament netting shall be used. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared and implemented by qualified practitioners.
26. A dewatering plan approved by the RWQCB and 30 CES/CEIEA shall be prepared and followed for excavations below the water table. Wet spoils removed from excavations shall be contained in aboveground structures surrounded by berms to prevent dirty water from entering the creek. Water shall be pumped into a container such as a Baker tank, or equivalent. If excess water is captured, it shall be tested for water quality according to RWQCB Region 3 standards. Excess water may be used for dust control. Alternatively, and with approval from RWQCB Region 3, if filtered water quality is at or above water quality in Honda Creek, water may be discharged to the creek in a manner that does not increase turbidity (e.g., through a vegetated filter). Biological monitoring may include additional patrols of banks and isolated pools and turbidity testing in Honda Creek.
27. Mobile equipment shall be staged, repaired, and maintained at least 500 feet outside the Honda Creek riparian corridor. Large equipment such as cranes shall be staged adjacent to the bridge, outside of the active channel. Fueling of equipment shall be conducted in pre-designated areas, outside of the active channel. Spill containment materials shall be placed around equipment before refueling. Personnel shall place protective mats of sufficient size, material, and design to prevent contamination of Honda Creek. Operators shall place standing equipment (e.g., cranes) on these mats and use drip pans and hydrocarbon absorbent pads to minimize environmental impacts.
28. If it is necessary to refuel or repair equipment within the riparian corridor, spill containment materials shall be placed beneath and around the equipment and a qualified biologist shall be present to document protection of water quality and biological resources.
29. Hazardous materials shall be properly stored and managed in secured areas located outside of the Honda Creek riparian corridor.
30. The edge of riparian vegetation and boundaries of work areas shall be shown on construction plans.
31. Construction fencing shall be placed along the outer edge of the Action Area to protect wetlands, waters, and riparian habitats from incidental impacts.
32. During construction, wetlands, waters, and riparian vegetation outside of the Action Area shall be left undisturbed. Streambank vegetation shall be clearly delineated by a qualified biologist.
33. Refueling trucks and other fuel or oil containers greater than 55-gallons that would remain onsite shall have secondary containment.

2.3.9.3 Water Resources

1. Construction contractor(s) shall follow National Pollutant Discharge Elimination System (NPDES) Construction General Permit requirements including preparation and implementation of a SWPPP. The SWPPP shall include BMPs for erosion and sediment control, non-stormwater management, spill prevention and control, vehicle and equipment fueling and maintenance, solid waste management, concrete waste management, stockpile management and septic waste management.
2. Construction contractor(s) shall adhere to accepted BMP manuals, such as the California Stormwater Quality Association BMP Manual. Erosion and sediment control BMPs for temporary and permanent protection shall be implemented to protect Honda Creek during work near the channel including, but not limited to, silt fence, biodegradable straw wattles or erosion control fabrics, and hydroseed. No monofilament netting shall be used. Temporary erosion and sediment control materials shall be removed upon project completion and disturbed soil areas shall be

stabilized to prevent erosion and meet Construction General Permit Notice of Termination and the Restoration Plan. Stormwater discharge from qualified storm events shall require water quality monitoring and reporting per the Construction General Permit. This includes visual monitoring and sampling and analysis for pH and turbidity

3. 30 CES/CEIE and RWQCB shall review the dewatering plan and proposed wastewater discharges. The dewatering plan shall require water quality monitoring (of the dewatering discharge water) and reporting per the Construction General Permit. This includes visual monitoring and sampling for pH and turbidity.

2.3.9.4 Cultural Resources - Site Resource Specific Historic Properties Protection Measures

Cultural resources investigations supporting compliance with Section 106 of the NHPA and NEPA identified 17 cultural resources within the APE, 11 of which are historic properties. The DAF, SHPO, and the Santa Ynez Band of Chumash Indians agreed that implementation of seven Historic Property Protection Measures (HPPMs) would avoid adverse effects at 10 historic properties and minimize adverse effects at one historic property. The eight HPPMs are described in the Section 106 Memorandum of Agreement and are summarized below.

Historic Property Protection Measure 1: The project would avoid adverse effects to CA-SBA-212 by prohibiting grading, limiting vegetation removal to mowing and/or hand-removal, and improving the Beach Access Road by placing a layer of geo-textile fabric along the road alignment and then placing a clean, weed-free, imported road base cap on top of the fabric to create the desired 12-foot-wide access road. Exclusionary fencing would be placed along the entire length of the road as it runs through CA-SBA-212, on both sides, to prevent vehicles and equipment from inadvertently driving into the site. Exclusionary fencing also would be placed around the perimeter of the borrow pit/staging area. Finally, wherever exclusionary fencing is installed, signage would be placed indicating the surrounding area is environmentally sensitive.

Historic Property Protection Measure 2: The project would avoid adverse effects to CA-SBA-539 by abandoning an existing access road through the site, adding a layer of clean fill on top of the existing access road that is suitable for planting endemic plant species, planting endemic plants species, and blocking access points at both ends of this route to exclude vehicles in the future.

Historic Property Protection Measure 3: The project would avoid adverse effects to CA-SBA-539 by limiting development of the South Abutment Access Routes and South Abutment Temporary Crane Pads to areas within the UPRR ROW that are previously disturbed and areas that do not include archaeological deposits that contribute to the NRHP eligibility of CA-SBA-539, and by placing solid barrier along the eastern margin of the south abutment access route to keep equipment out of areas with intact archaeological deposits.

Historic Property Protection Measure 4: The project would avoid adverse effects to CA-SBA-670 by requiring establishment of the North Abutment Accessway to include installation of exclusionary fencing or rigid barrier along the base of the eastern cutbank through the dune beginning at the south end of the cutbank, extending along the base of the cutbank for the entire length of the western boundary of CA-SBA-670, and extending an additional 60 meters north of the boundary of CA-SBA-670. Exclusionary fencing or rigid barrier would remain in place during all project activities. A qualified archaeologist would inspect the fencing or barrier prior to the start of project activities and monitor this location periodically for the duration of construction activities.

Historic Property Protection Measure 5: The project would avoid adverse effects to CA-SBA-670 by restricting access to the Acacia habitat area for potential restoration to foot traffic only and restricting acacia removal techniques to hand cutting only above the ground surface. Additionally, revegetation of the area would be limited to hand-broadcasting seed and/or hydroseeding.

Historic Property Protection Measure 6: The project would avoid adverse effects to CA-SBA-669 during improvement of the Lower Beach Access Road by constructing a temporary rock/block wall along the western road margin at the base of the vertical cutbank to protect the portion of the site containing significant archaeological deposits. No ground-disturbing activities would occur within the significant portion of CA SBA 669 west of STPs 62, 63, 64, and 65. Additionally, exclusionary fencing would be installed around the significant archaeological deposits and within 60 meters of CA SBA 669. Fencing would remain in place through all project construction activity. A qualified archaeologist would inspect the fencing prior to project construction.

Historic Property Protection Measure 7: The project would minimize adverse effects to CA-SBA-530 by adopting a strategy of avoidance in the form of capping the site along the Pier 2 Access Road. No ground-disturbing activities would occur along the access route. Instead, the access road would be established on top of the existing ground surface using geotextile fabric and clean, weed-free imported gravel. The geotextile fabric would be placed by hand along the proposed access route, followed by installation of temporary exclusionary fencing along both sides of the access route as it runs through CA-SBA-530. Lastly, starting at the intersection of the Pier 2 access road and the railroad tracks, imported gravels would be placed on top of the geotextile fabric to create the road base. Only rubber-tired vehicles would be used to place the road base. Road base shall be placed from the intersection with the railroad tracks to the Pier 2 abutment excavation area at the lower causeway. Upon completion of the bridge replacement project, road base material shall be removed starting at the Pier 2 abutment and working north to the intersection with the railroad tracks. Geotextile fabric shall then be removed by hand, followed by ESA fencing. Installation and removal of the Pier 2 access road and exclusionary fencing would be monitoring by a qualified archaeologist.

Historic Property Protection Measure 8: If any previously undocumented cultural resources are discovered during construction activities, work shall stop in within a 30-meter radius of the find and the procedures established in 36 CFR 800.13 and the SLD 30 ICRMP shall be followed. A SLD 30 Cultural Resource Manager shall be contacted to assess the find.

2.3.9.5 Hazardous Materials, Solid Waste, Human Health, & Safety

1. Proper disposal of hazardous waste shall be accomplished through identification, characterization, sampling, and analysis of wastes generated.
2. All hazardous materials shall be properly identified and used per manufacturer's specifications to avoid accidental exposure to, or release of hazardous materials required to operate and maintain construction equipment. Wastes generated during construction and demolition shall be disposed of off base by the contractor. However, to the greatest extent practicable, the contractor shall segregate all waste and manage the wastes separately. To the extent practicable, recyclable construction and demolition waste (e.g., steel rail and support assemblies) shall be transported to a recycler.
3. All equipment shall be properly maintained and shall be free of leaks during construction and maintenance activities. All necessary equipment maintenance and repairs shall be performed in pre-designated controlled, or paved areas to minimize risks from accidental spillage or release. Prior to construction, a Spill Prevention Pollution Control Plan specific to this Proposed Action shall be submitted to 30 CES/CEIEA for approval. The contractor would develop and follow an approved Spill Prevention, Control, and Countermeasure Plan per 40 CFR Part 112, including procedures to ensure that all equipment is properly maintained and free of leaks and all necessary repairs incorporate proper spill containment.
4. UPRR shall coordinate with SLD 30 regarding transport and use of hazardous materials (e.g., diesel fuel) for work outside of UPRR property prior to implementing the Proposed Action.

5. UPRR shall comply with federal OSHA requirements during construction and annual maintenance activities.
6. UPRR shall be wholly responsible for the management and disposal of all hazardous and solid waste generated from the project. This includes full accountability for any possible spill response and reporting.
7. UPRR shall continue to work directly with SLD 30 command to develop and manage work windows that avoid direct conflict with SLD 30 operations.
8. Prior to project implementation, a Health and Safety Plan shall be developed. In addition, UPRR shall coordinate with SLD 30 to ensure unexploded ordnances (UXO) are avoided. Workers shall take UXO, biological (e.g., snakes and poison oak), and physical hazards (e.g., rocky or unstable terrain) training.
9. If contaminated soil is encountered, UPRR shall segregate the soil, immediately contact SLD 30 Hazardous Waste Program Manager, and would dispose offsite at a California Department of Toxic Substances Control (DTSC)-approved landfill. Operators will identify contaminated soils by odor and visual staining (natural condition appears altered).
10. All disposal material such as cleared/grubbed vegetation, rail, broken ties, and rubble, shall be disposed of legally outside of the grading footprint, and comply with federal, State, and local regulations. Large trees, willows, or shrubs shall not be burned, but may be shredded into mulch and used for compost, or ground cover in exposed areas (e.g. capping slopes and ditch bottoms).
11. Large pieces of concrete or stone greater than 16 inches in diameter encountered during grading shall be removed offsite. Stockpiling of pieces shall be allowed outside of the riparian zone prior to removal.
12. Material disposed offsite shall be taken to a certified recycler or landfill, except for treated wood waste (e.g., ties, bridge timbers, etc.), which shall be disposed of in an offsite permitted solid waste landfill in California and shall not be recycled.
13. Staging, labeling, and shipping of treated wood waste to the offsite permitted solid waste landfill in California shall be completed per the CCR alternative management standards for treated wood waste (CCR Title 22, Division 4.5, Chapter 34).
14. Contractor shall be responsible for marking/lighting temporary crane structures in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, flags/red lights-Chapters 3 (Marked), 4.5 (Red), 14 (Temporary), & 15. Any failure or malfunction that lasts more than 30 minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen can be issued. As soon as the normal operation is restored, notify the same number.
15. Employees and contractors working within the Action Area shall be notified per the California Health and Safety Code, Section 25915 et. seq. and Proposition 65 (asbestos notification). Any contractor disturbing materials that contain any amount of asbestos is subject to 8 CCR 1529, including, at a minimum: exposure monitoring, use of HEPA-equipped vacuum cleaners, wet methods, prompt clean up, and proper labeling of waste containers.
16. All regulated asbestos containing materials (ACMs) shall be removed prior to any demolition or renovation activity that would break up, dislodge, or similarly disturb the material.
17. Proper notifications shall be made to the local air quality management or air pollution control district prior to the start of work.
18. If additional ACMs or suspected ACMs are discovered, construction personnel shall be instructed to immediately cease activities that may initiate a fiber release and notify appropriate management personnel.

19. The provisions set forth in 8 CCR 1532.1, Cal/OSHA Construction Safety Orders Lead, shall be followed during construction, alteration, or repair of equipment or components coated with paint containing any amount of lead. Tasks such as manual scraping, demolition, cutting and torch burning may require the use of qualified trained personnel. Additional safety precautions may include medical surveillance, respiratory protection, and exposure assessments based on work practices.
20. An exposure assessment shall be performed on employees disturbing the coating materials on the structural steel of the bridge. Activities of concern would include manual demolition, scraping, torch cutting, welding, blasting, or any other activity that may result in airborne dust, fumes, or vapors from tar or paint. Further waste characterization analysis is necessary for any accumulated coatings for disposal, including soluble threshold limit concentration (STLC) analysis for arsenic, chromium, and copper, and toxicity characteristic leaching procedure (TCLP) analysis for arsenic, chromium, and lead.
21. Notes on contractor's plans shall indicate that excavation near utilities are prohibited 48 hours prior to a liftoff. In addition, the 30th Civil Engineer Squadron shall be notified 1 to 2 days prior to breaking surface along or near Coast Road, where a high-pressure nitrogen gas pipeline is buried. Contact information is as follows: (1) Dennis Pakulski (805- 757-6518), (2) Glenn Bruner (805-606-1625), or (3) Rick Heslop (805-606-5026).

2.3.9.6 Transportation

Project personnel shall be encouraged to carpool to reduce traffic on VSFB roads. Access through Surf Gate shall be utilized for most heavy equipment and material deliveries, especially during high-volume periods. Truck trips shall be scheduled during non-peak traffic hours to the greatest extent practicable. A separate security checkpoint may be set up for construction traffic to avoid tying up VSFB security checkpoints. A separate security checkpoint shall be set up to alleviate construction traffic at the South Base Gate and avoid congestion at the VSFB security checkpoint.

3 AFFECTED ENVIRONMENT

Each environmental resource described in the following subsections include a Regulatory Setting or criteria for impact determination, if applicable, and Existing Conditions. The Region of Influence (ROI) is described in the Existing Conditions for each environmental resource and may be confined to the Action Area, or a wider area may be considered, depending on the resource. A list of environmental resources and reasons not analyzed are provided in Table 3-1.

TABLE 3-1. ENVIRONMENTAL RESOURCES NOT ANALYZED

Environmental Resource	Reason Not Analyzed
Visual Resources	The new bridge would appear similar to the existing bridge. Access to VSFB is controlled by the DAF, and the Action Area is not open to the general public; therefore, impacts to visual resources would be negligible.
Agriculture and Forestry	The Proposed Action would not impact prime farmland, unique farmland, farmland of statewide importance, forest land, or timberland (FMMP 2016).
Mineral Resources	There are no significant mineral resources within the Action Area (CGS 2022a) and the Proposed Action would not impact significant local, regional, or state mineral resources.
Noise (humans)	The Action Area is undeveloped with no sensitive noise receptors nearby. Noise levels would temporarily rise above existing levels during construction but would not affect any sensitive noise receptors.
Environmental Justice	Per EO 12898, Environmental Justice, the Proposed Action would not impact minority or low-income populations because the Action Area and anticipated impacts would not be located near or extend to residential areas or to populations identified as minority or low income.
Population and Housing	The Proposed Action would not remove, restrict, or encourage population growth in the area and would have no significant impact on population and housing.
Public Services	There are no public services in the vicinity of the Proposed Action. Potential impacts to utilities are covered in Sections 3.10 and 4.10.
Recreation	Access to the Action Area is restricted by the DAF and is not open to the public for outdoor recreation; therefore, the Proposed Action would have no impact on recreational resources.

3.1 Air Quality/Greenhouse Gas

Ambient air quality refers to atmospheric concentration of a specific compound (amount of pollutant in a specified volume of air) at a geographic location. Ambient air quality levels are determined by interactions of emissions, meteorology, and chemistry. Emissions include types and amounts of pollutants emitted into the atmosphere at a location. Ambient air quality data are generally reported as a mass per unit volume (e.g., micrograms per cubic meter of air) or as a volume fraction (e.g., parts per million [ppm] by volume).

Primary pollutants are carbon monoxide (CO), sulfur dioxide (SO_2), and lead (Pb) emitted directly into the atmosphere. Secondary pollutants are ozone (O_3), nitrogen dioxide (NO_2), and some particulates that are formed by chemical reactions in the atmosphere. Fine particulate matter with aerodynamic

diameter less than or equal to 10 microns (PM_{10}) and fine particulate matter with aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$) is generated as primary pollutants by various mechanical processes (abrasion, erosion, mixing) or combustion processes. However, PM_{10} and $PM_{2.5}$ is a secondary pollutant from chemical reactions or by gaseous pollutants condensing into fine aerosols. Emissions considered "precursors" to secondary pollutants are pollutants for which emissions are evaluated to control the level of O_3 in the ambient air.

Criteria air pollutants evaluated include VOCs, NO_2, CO, SO_2, PM_{10}, $PM_{2.5,}$ Pb and greenhouse gas (GHG) emissions. The most common GHGs emitted from natural processes and human activities include CO_2, methane, and nitrous oxide. Total GHG emissions from a source are often reported as million metric tons (mmt) of CO_2 equivalents (CO_2e).

3.1.1 Regulatory Setting

The EPA and California Air Resources Board (CARB) are the primary agencies responsible for enforcing air quality regulations. The Federal and California Clean Air Acts (CAAs) require states to develop and implement strategies to attain the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The CAAQS were established by CARB and are generally more stringent than the NAAQS (except for the 1-hour NO_2 and SO_2 standards) and include four additional pollutants. Table 3-2 summarizes both the current NAAQS and CAAQS. Because the CAAQS are generally more stringent than the NAAQS, attainment of the CAAQS would require more emission reductions than what would be required to show attainment of the NAAQS. Similar to the federal system, State requirements are based on the severity of the ambient air quality standard violation within a region (i.e., the region's attainment status).

TABLE 3-2. NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	CAAQS	NAAQS	
			Primary [a]	Secondary [b]
O_3	8 hours	0.070 ppm	0.070 ppm	0.070 ppm
	1 hour	0.09 ppm	—	—
PM_{10}	Annual arithmetic mean	20 µg/m^3	—	—
	24 hours	50 µg/m^3	150 µg/m^3	150 µg/m^3
$PM_{2.5}$	Annual arithmetic mean	12 µg/m^3	12 µg/m^3	15 µg/m^3
	24 hours	—	35 µg/m^3	35 µg/m^3
CO	8 hours	9.0 ppm	9 ppm	—
	1 hour	20 ppm	35 ppm	—
NO_2	Annual arithmetic mean	0.030 ppm	0.053 ppm	0.053 ppm
	1 hour	0.18 ppm	0.100 ppm	—
SO_2	24 hours	0.04 ppm	—	—
	3 hours	—	—	0.5 ppm
	1 hour	0.25 ppm	0.075 ppm	—
Pb - Lead	Calendar quarter	—	1.5 µg/m^3	1.5 µg/m^3
	Rolling 3-month average	—	0.15 µg/m^3	0.15 µg/m^3
	30-day average	1.5 µg/m^3	—	—
Visibility reducing particles	8 hours	—[c]	No National Standards	No National Standards
SO_4 - Sulfates	24 hours	25 µg/m^3	No National Standards	No National Standards

Pollutant	Averaging Time	CAAQS	NAAQS	
			Primary [a]	Secondary [b]
HS - Hydrogen sulfide	1 hour	0.03 ppm	No National Standards	No National Standards
Vinyl chloride	24 hours	0.01 ppm	No National Standards	No National Standards

Source: CARB 2016

Note: Concentrations are measured by ppm=parts per million and µg/m^3=micrograms per cubic meter

a – National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect public health.

b – National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

c – In 1989, CARB converted the general statewide 10-mile visibility standard to instrumental equivalents, which are 'extinction of 0.23 per kilometer.'

3.1.1.1 Federal

The CAA and subsequent amendments specify regulations for controlling the nation's air quality. The EPA is responsible for implementing most aspects of the CAA and has established NAAQS for the following criteria pollutants: CO, PM_{10}, $PM_{2.5}$, O_3, NO_2, SO_2, and lead. These standards represent the maximum allowable atmospheric concentrations that may occur and still protect public health and welfare with a reasonable margin of safety.

The EPA designates a region meeting an air quality standard for a given pollutant as being in "attainment" for that pollutant. If the region is not meeting an air quality standard, it is designated as being in "nonattainment." Areas once designated as nonattainment areas that recently met the standard are designated "maintenance" areas. Areas with insufficient data to facilitate designation or areas where designations have yet to be made are "unclassified."

The EPA requires facility owners and operators to report GHG emissions under the Mandatory Reporting of Greenhouse Gases Rule (40 CFR Part 98). This project would not be subject to federal GHG emissions reporting as it does not result in the construction or operation of any stationary emission sources identified in 40 CFR Part 98.2(a)(1) through (a)(3).

3.1.1.1.1 New Source Review (NSR)

NSR is required for stationary sources with a potential to emit any pollutant regulated under the federal CAA equal to or exceeding specified major source thresholds of 100 or 250 tons per year, depending on the source's industrial classification. The SBCAPCD is the delegated authority for permitting stationary sources subject to the NSR process.

3.1.1.1.2 Title V of the CAA

Major source emitters are required to acquire a (Title V) permit through their state/local agency (SBCAPCD) state operating permit programs (Title 40, CFR, Part 70). The threshold for air pollutants is 100 tons/year; however, it is a lower threshold for non-attainment areas. Hazardous Air Pollutants (HAPs) are 10 tons/year for a single HAP or 25 tons/year for any combination of HAP.

3.1.1.1.3 General Conformity

Under 40 CFR Part 93 and the provisions of Part 51, Subchapter C, Chapter I, Title 40, Appendix W of the CFR, of the CAA as amended, federal agencies are required to demonstrate that federal actions conform with the applicable State Implementation Plan (SIP).

The EPA general conformity rule applies to federal actions occurring in nonattainment or maintenance areas. Because SBC is an attainment/unclassified area for all NAAQS, the General Conformity Rule does not apply to the Proposed Action at VSFB.

3.1.1.1.4 Air Force Manual (AFMAN) 32-7002

AFMAN 32-7002 describes the AF Air Quality Compliance and Resource Management Program. This program identifies AF air resource management requirements, compliance with the CAA, and other State, and local environmental regulations for actions which would impact air quality. While much of this document is geared towards establishing standardized procedures for preparing annual emissions inventories and demonstrating compliance with Air Quality Program requirements, it also requires the completion of a General Conformity applicability analysis and General Conformity determination per 40 CFR Part 93 to ensure that a proposed action does not interfere with the applicable SIP for achieving and maintaining the NAAQS for criteria pollutants. Under AFI 32-7002, a conformity applicability analyses must be completed. The analyses must be from an approved air quality/database tool used for General Conformity Determinations (USAF 2020a).

3.1.1.2 Region

3.1.1.2.1 Santa Barbara County Air Pollution Control District

The Santa Barbara County Air Pollution Control District (SBCAPCD) regulates stationary sources of air pollution and establishes emission limitations and pollution control measures for various sources, based on their source type and magnitude of emissions.

SBCAPCD has developed recommended significance thresholds that are contained in the SBCAPCD Scope and Content of Air Quality Sections in Environmental Documents (SBCAPCD 2022a). Project emissions are potentially significant impacts if any of the SBCAPCD recommended thresholds are exceeded.

For construction-related emissions, the SBCAPCD recommends 25 tons per year for reactive organic compounds (ROC) or NO_X as a guideline for determining the significance of construction impacts. SBCAPCD recommends incorporation of standard mitigation measures to minimize localized air quality impacts commonly associated with construction activities, such as fugitive dust, and to ensure consistency with air quality attainment and maintenance efforts.

3.1.1.2.2 Clean Air Plans

Under the California CAA, the SBCAPCD is required to develop Clean Air Plans (CAPs) that summarize air quality and air pollution sources and identify pollution control measures. In general, the CAPs seek to achieve and/or maintain compliance with federal and state nonattainment criteria pollutants within their air district. The most recent 2019 CAP (Ozone Plan, SBAPCD 2019a) implements strategies to ensure progress towards attainment. Since the CAP's first inception in 1991 (updated triennially) the SBCAPCD has adopted or amended 25 control measures that are focused on reducing air pollution emissions from stationary sources.

3.1.1.2.3 Rule 345

Control of Fugitive Dust from Construction and Demolition Activities establishes limitations on the generation of fugitive dust emissions from construction and demolition sites (SBCAPCD 2010). The SBCAPCD also implements a permit program for new or modified stationary sources of air pollutants.

3.1.1.2.4 Santa Barbara County

The SBC has adopted an interim GHG emissions threshold of significance of 300 metric tons of carbon dioxide equivalent (MTCO2e) per year. In accordance with County-recommended guidance, construction-generated GHG emissions are amortized over a 30-year period and included with estimated long-term operational GHG emissions for comparison to the interim GHG threshold (SBCPDD 2021). Projects that exceed this screening threshold can also be evaluated by an efficiency GHG emissions threshold based on the project's estimated service population, if applicable. The County's interim thresholds are based on SB 32 (Senate Bill 32) Year 2030 GHG-reduction goals, which take into consideration the emission reduction strategies outlined in CARB's 2017 Scoping Plan. Projects that do not exceed the County's interim thresholds would be considered to have a less than significant increase in GHG emissions and would not be expected to interfere with GHG-reduction planning efforts (SBCPDD 2021). For purposes of this analysis, amortized construction-generated emissions were evaluated in comparison to the County's interim threshold of 300 $MTCO_2e$ per year.

3.1.2 Existing Conditions

The Action Area is managed by the SBCAPCD. Santa Barbara is one of three counties within the South-Central Coast Air Basin (SCCAB). The SCCAB, or region of influence (ROI) for air quality, is part of California's 15 geographic air basins used for regulating emissions on a regional basis.

Air quality within the SCCAB is regulated by the U.S. EPA, ARB, and the SBCAPCD. Each of these jurisdictions develops rules, regulations, and policies to attain the goals or directives imposed upon them through legislation.

Characterized by a cool Mediterranean climate, the area has warm, dry summers and mild, relatively damp winters with average annual precipitation of approximately 16 inches. Because of the project's proximity to the coastline, marine air from the Pacific Ocean has a strong moderating effect on air temperatures, with average temperatures ranging from 49 to 68 degrees Fahrenheit (USCD 2022).

The SBCAPCD is responsible for regulating stationary sources of air emissions in SBC. California standards identified by the CAAQS are stricter than NAAQS. Santa Barbara County is currently an attainment/unclassified area for all NAAQS criteria pollutants and attainment/unclassified for all CAAQS except 8-hour O_3 and particulate matter less than 10 microns in diameter (PM_{10} and $PM_{2.5}$) (SBCAPCD 2019, 2022c).

As of April 2021, SBC was designated as nonattainment/transitional for the CAAQS 8-hour O_3 standard as the county has had three or fewer exceedances over the CAAQS 8- hour O_3 standard since 2018. To achieve attainment status, both the 1-hour and 8-hour air quality measurements must not violate the CAAQS standards. The major sources of O_3 in SBC are from motor vehicles, the petroleum industry, and solvent usage. Sources of PM_{10} include mineral quarries, grading, demolition, agricultural tilling, road dust, and vehicle exhaust (SBCAPCD 2022c).

CARB and the SBCAPCD operate a network of ambient air monitoring stations in SBC to measure concentrations of air pollutants in representative populated areas. These stations determine if air pollutants either meet or exceed the thresholds identified by CAAQS and NAAQS. Table 3-3 includes data from the nearest air monitoring station to the Action Area on South H Street in Lompoc and VSFB's former air quality monitoring station which ceased operating after 2019.

In the United States (US), the primary source of GHG emissions is transportation (27 percent), followed by electricity (25 percent) and Industry (24 percent) (USEPA 2022a). In California, transportation source emissions are at 41 percent, including passenger cars, light duty trucks, other trucks, buses, and motorcycles (CARB 2022). The primary GHG emitted is CO_2, which is generated mostly from fossil fuel combustion. This project's main source of GHG emissions would come from the combustion of diesel and gasoline from construction equipment and other vehicles.

TABLE 3-3. DATA SUMMARY FOR SPECIFIC MONITORING STATIONS

Year	Exceedance*	Monitoring Station
2021	24-hr PM_{10} exceeded CAAQS 1 day	Lompoc H Street
2020	24-hr PM_{10} exceeded CAAQS 17 days	Lompoc H Street
	24-hr $PM_{2.5}$ exceeded NAAQS 8 days	Lompoc H Street
2019	24-hr PM_{10} exceeded CAAQS 3 days	Lompoc H Street
2018	24-hr PM_{10} exceeded CAAQS 4 days	VSFB
	24-hr $PM_{2.5}$ exceeded NAAQS 2 days.	Lompoc H Street
2017	8-hr O_3 exceeded CAAQS/NAAQS 1 day	VSFB
	24-hr PM_{10} exceeded CAAQS 35 days	VSFB
	24-hr PM_{10} exceeded NAAQS 2 days	VSFB
	24-hr $PM_{2.5}$ exceeded NAAQS 4 days	Lompoc H Street

SBAPCD 2022c

*An exceedance is a measured concentration at a monitoring station that surpasses the standard (SBAPCDD 2019a)

3.2 Biological Resources

Biological Resources within the Action Area were documented during botanical and wildlife surveys conducted between 2018 and 2022. A complete list of plant and wildlife taxa detected within the survey area and brief life histories for special status taxa are provided in Appendix N. These surveys also informed the Biological Assessment for the Proposed Action (Appendix B), and subsequent BO (Appendix C). Appendix M presents details of our jurisdictional wetlands and waters determinations that were identified using methods described in the Corps of Engineers Wetlands Delineation Manual (USACE 1987) and supplementary guidelines (USACE 2008a, 2008b).

Research on special status plant and animal taxa is based on recent or historical records or presence of potentially suitable habitat within a two-mile radius from the Action Area. Occurrence data are based on the California Natural Diversity Database (CNDDB; CDFW 2022b), California Native Plant Society On-line Inventory of Rare and Endangered Plants of California (CNPS 2022b), the Consortium of California Herbaria (CCH 2021), the USFWS Information for Planning and Consultation tool (IPaC; USFWS 2021a), unpublished biological reports, and data and personal communications from 30 CES/CEIEA.

3.2.1 Regulatory Setting

Special status taxa considered are defined in Section 3.2.2.3, Table 3-4 and Section 3.2.2.4, Table 3-5. The ESA provides the legal framework for the listing and protection of species (and their habitats) identified as being endangered or threatened with extinction. Under Section 7 of the FESA, federal agencies are required to consult with the USFWS or National Oceanic and Atmospheric Administration (NOAA) Fisheries if a proposed action may affect listed species or designated critical habitat.

As defined in Section 304 of the CZMA the coastal zone does not include lands that are subject to the discretion or is entrusted by the Federal Government. However, per DAF implementing regulations outlined in Section 3.26.2 of AFMAN 32-7003, the DAF is required to undertake federal actions in a manner consistent to the maximum extent practicable with California's CZMP policies via the

Consistency Determination process. However, a significant part to the Proposed Action (replacement of Honda Bridge itself) would occur on privately owned UPRR property, which is subject to the CZMA and would need to obtain a Coastal Consistency Certification. Habitats classified as CCC ESHAs are based on guidelines used to designate ESHA elsewhere in California, and includes presence of waters and wetlands, riparian vegetation, sensitive vegetation communities for special status plant or animal taxa.

See Section 3.3.1 for discussion of CWA Section 404 and 401.

TABLE 3-4. SPECIAL STATUS PLANTS

	Scientific[1] Name Common[2] Name	Rankings[3] ESA/CESA Global/State CRPR	Blooming Period[1,3]	Habitat[3] and Range[1]	Status and Potential to Occur Within the Proposed Action Area
1.	***Abronia maritima*** Red sand-verbena	None/None G4/S3? 4.2	February–November	Coastal dunes < 100 m (meters) s CCo, SCo, ChI, Baja California	**Low**. Little to no suitable habitat is present as the species occurs on active dunes along the immediate shoreline
2.	***Agrostis hooveri*** Hoover's bent grass	None/None G2/S2 1B.2	April—August	Sandy substrates in chaparral and cismontane woodlands < 610 m s CCo, s SCoRO	**Not expected.** Suitable habitat may be present, but the species is not known to occur south of the Santa Ynez River
3.	***Arctostaphylos purissima*** Purissima manzanita	None/None G2/S2 1B.1	January—March	Sandstone and sandy substrates, chaparral < 300 m s CCo, s SCoRO, w WTR	**Not expected.** The species occurs inland/upslope in different habitat and soil types
4.	***Arctostaphylos rudis*** Sand mesa manzanita	None/None G2/S2 1B.2	November—February	Sandy soils, chaparral, < 380 m s CCo, s SCoRO	**Not expected.** The species occurs inland/upslope in different habitat and soil types
5.	***Astragalus nuttallii* var. *nuttallii*** Ocean bluff milk-vetch	None/None G4T4/S4 4.2	All year	Rocks, coastal bluff scrub, coastal dunes < 250 m CCo	**Present**. Detected during project surveys
6.	***Atriplex coulteri*** Coulter's saltbush	None/None G3/S1S2 1B.2	March-October	Coastal bluffs, scrub, dunes < 360 m SCo, ChI, Baja California	**Low.** Some suitable habitat is present but near the northern edge of known range; only one nearby record
7.	***Ceanothus cuneatus* var. *fascicularis*** Lompoc ceanothus	None/None G5T4/S4 4.2	February—May	Sandy substrates, coastal chaparral < 275 m s CCo	**Not expected.** The species occurs further north and usually further inland
8.	***Ceanothus impressus* var. *impressus*** Santa Barbara ceanothus	None/None G3T3/S3 1B.2	February–April	Sandy substrates of flats and canyons < 320 m s CCo	**Low.** Some suitable habitat is present, and the species occurs nearby but further inland
9.	***Chenopodium littoreum*** Coastal goosefoot	None/None G1/S1 1B.2	April–October	Coastal dunes < 30 m s CCo	**Present**. Detected during project surveys
10.	***Cirsium rhothophilum*** Surf thistle	None/CT G1/S1 1B.2	April–August	Dunes, bluffs < 60 m s CCo	**Present**. Detected northwest of Honda Bridge during surveys and suitable habitat is present elsewhere

	Scientific[1] Name Common[2] Name	Rankings[3] ESA/CESA Global/State CRPR	Blooming Period[1,3]	Habitat[3] and Range[1]	Status and Potential to Occur Within the Proposed Action Area
11.	***Dichondra occidentalis*** Western dichondra	None/None G3G4/S3S4 4.2	Jan—July	Coastal scrub, chaparral, oak woodland < 520 m s CCo, SCo, ChI, PR, Baja California	**Low.** Some suitable habitat is present; only one nearby record
12.	***Dithyrea maritima*** Beach spectaclepod	None/CT G1/S1 1B.1	March–August	Coastal sandy soils < 50 m s CCo, SCo, ChI, Baja California	**Low**. Small amount of potentially suitable habitat is present
13.	***Erigeron blochmaniae*** Blochman's leafy daisy	None/None G2/S2 1B.2	June–October	Coastal dunes and scrub < 45 m s CCo	**Present**. Detected during project surveys
14.	***Erigeron sanctarum*** Saint's daisy	None/None G3/S3 4.2	March—July	Sandy sites in coastal scrub or woodland < 500 m s CCo, s SCoRO, n ChI	**Low**. Potentially suitable habitat is present but few nearby records
15.	***Erysimum suffrutescens*** Suffrutescent wallflower	None/None G3/S3 4.2	December—August	Stabilized coastal dunes and coastal scrub < 150 m s CCo, n SCo	**Present**. Detected during project surveys
16.	***Horkelia cuneata* var. *puberula*** Mesa horkelia	None/None G4T1/S1 1B.1	February—Sep	Dry sandy coastal chaparral < 870 m SCoRO, SCo, PR	**Not expected**. Generally found further inland in chaparral habitats; one nearby record
17.	***Horkelia cuneata* var. *sericea*** Kellogg's horkelia	None/None G4T1?/S1? 1B.1	April–September	Old dunes, coastal scrub, and chaparral < 200 m CCo	**Low**. Some suitable dune habitat is present in the Proposed Action Area; few nearby records
18.	***Juglans californica*** California walnut	None/None G4/S4 4.2	March—August	Hillside and canyons in chaparral, coastal scrub, riparian woodland < 900 m SW	**Low**. Suitable habitat is present; few nearby records
19.	***Lasthenia glabrata* subsp. *coulteri*** Coulter's goldfields	None/None G4T2/S2 1B.1	February—June	Saline places and vernal pools < 1000 m NCoRI, s SNF, Teh, GV, CW, SCo, n ChI, PR, w DMoj	**Not expected**. Some suitable saline habitat is present; one historical record from Santa Ynez River

	Scientific[1] Name Common[2] Name	Rankings[3] ESA/CESA Global/State CRPR	Blooming Period[1,3]	Habitat[3] and Range[1]	Status and Potential to Occur Within the Proposed Action Area
20.	***Layia carnosa*** Beach layia	FT/CE G2/S2 1B.1	March—July	Coastal dunes < 70 m n NCo, CCo	**Present**. Suitable habitat and recent records within Proposed Action Area
21.	***Lilium humboldtii* subsp. *ocellatum*** Ocellated Humboldt lily	None/None G4T4?/S4? 4.2	March—August	Chaparral, coastal scrub, riparian woodland < 1800 m s CW, SW	**Present**. Detected during project surveys
22.	***Lomatium parvifolium*** Small-leaved lomatium	None/None G3/S3 4.2	January—June	Chaparral, closed-cone coniferous forest, coastal scrub, riparian woodland on rocky outcrops < 700 m CCo, SCoR	**Not expected**. Occurs within 0.5-mile of the Proposed Action Area but inland and on volcanic substrates
23.	***Malacothrix incana*** Dunedelion	None/None G3G4/S3S4 4.3	All year	Coastal dunes < 35 m CCo, SCo, ChI	**Present**. Detected during project surveys
24.	***Monardella sinuata* subsp. *sinuata*** Southern curly-leaved monardella	None/None G3T2/S2 1B.2	April–September	Sandy soils, coastal strand, dune and sagebrush scrub, coastal chaparral, and woodland < 300 m S CCo, s SCoRO	**High**. Suitable coastal strand and dune habitat is present; one historical record nearby
25.	***Monardella undulata* subsp. *arguelloensis*** Point Arguello monardella	None/None G3T1/S1 1B.1	May–September	Stabilized coastal dunes, bluff scrub, sandy soils < 150 m s CCo	**Not expected**. Occurs nearby but known only from immediate vicinity of Point Arguello
26.	***Monardella undulata* subsp. *crispa*** Crisp monardella	None/None G3T2/S2 1B.2	April–December	Active dunes < 100 m s CCo	**Present**. Detected during project surveys
27.	***Monardella undulata* subsp. *undulata*** San Luis Obispo monardella	None/None G2/S2 1B.2	April–September	Stabilized dunes, coastal scrub, stabilized sandy soils < 200 m s CCo	**Present**. Detected during project surveys
28.	***Mucronea californica*** California spineflower	None/None G3/S3 4.2	March–August	Sandy soil in coastal scrub, chaparral < 1400 m s CW, SW	**Present**. Detected during project surveys

	Scientific[1] Name Common[2] Name	Rankings[3] ESA/CESA Global/State CRPR	Blooming Period[1,3]	Habitat[3] and Range[1]	Status and Potential to Occur Within the Proposed Action Area
29.	***Scrophularia atrata*** Black-flowered figwort	None/None G2?/S2? 1B.2	March–July	Closed-cone coniferous forest, riparian scrub, dune habitats; in sand, diatomaceous shales, calcareous and other soil types < 500 m CCo, s SCoRO	**Present**. Recent records at south end of the Action Area; suitable habitat is present elsewhere
30.	***Senecio blochmaniae*** Blochman's ragwort	None/None G3/S3 4.2	May–November	Coastal sand dunes, sandy floodplains < 150 m CCo	**Present**. Detected during project surveys

[1] Taxonomy and ranges follow Jepson 2021 [2] Common names follow CalFlora (CITE) [3] Ranking, bloom period, range, and habitat follow CNPS 2022b & Jepson 2021

California Geographic Subregion Abbreviations from The Jepson Manual (Baldwin et al. 2012):

CCo: Central Coast
ChI: Channel Islands
CW: Central West (California)
DMoj: Mojave Desert
GV: Great Valley
NCoRI: Outer North Coast Ranges
PR: Peninsular Ranges
SCo: South Coast
SCoRO: Outer South Coast Ranges
SNF: Sierra Nevada Foothills
SW: Southwest (California)
The: Tehachapi Mountains
WTR: Western Transverse Ranges
n, e, s, w = cardinal directions

State/Rank Abbreviations:
FE: Federally Endangered
FT: Federally Threatened
CE: California Endangered
CT: California Threatened

California Rare Plant Ranks:
CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere
CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
CRPR 4: Plants of limited distribution - a watch list
0.1 - Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2 - Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3 - Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Global/State Ranks:
G1/S1 – Critically Imperiled
G2/S2 – Imperiled
G3/S3 – Vulnerable
G4/S4 – Apparently Secure
G5/S5 – Secure
Range rank – (e.g., S2S3 means rank is somewhere between S2 and S3)
? – rank is uncertain

TABLE 3-5. SPECIAL STATUS ANIMALS

	Scientific Name Common Name	ESA / CESA Global / State Rank CDFW Status	Nesting/ Breeding Period	Habitat Preference	Potential to Occur in Proposed Action Area	Detected During Project Surveys
	Invertebrates					
1.	***Danaus plexippus*** Monarch California overwintering population 1	FCL/None G4T2T3/S2S3 SA	Spring—Fall	Forms winter roosts in wind-protected tree groves near the coast.	**Not expected (aggregation)**. Formerly wintered within Proposed Action Area but colony no longer present. Occurs as a migrant.	No aggregation Fliers in area
	Fishes					
2.	***Eucyclogobius newberryi*** Tidewater goby	FE/None G3/S3	Year-round	Calm waters with high dissolved oxygen in shallow coastal lagoons and lower reaches of streams.	**Not expected**. Extirpated from Honda Creek but could recolonize.	No
	Amphibians					
3.	***Rana draytonii*** California red-legged frog	FT/ None G2G3/S2S3 SSC	November – April	Lowlands and foothills in or near permanent sources of water with dense, shrubby, or emergent riparian vegetation.	**Present**. Documented within the Proposed Action Area.	Yes
	Reptiles					
4.	***Actinemys pallida*** Southwestern pond turtle	PT/None G3G4/S3 SSC	Spring—summer	Permanent or semi-permanent rivers, streams, lakes, ponds, marshes, or ditches with slow-flowing water and plentiful basking and cover sites.	**High**. Documented in Honda Creek approximately 3 miles upstream of the Proposed Action Area.	No
5.	***Anniella pulchra*** Northern California legless lizard	None/None G3/S3 SSC	Spring—summer	Sandy or loose loamy soils with high moisture content and sparse vegetation.	**Present**. Documented within the Proposed Action Area.	No
6.	***Thamnophis hammondii*** Two-striped garter snake	None/None G4/S3S4 SSC	Summer—Fall	Highly aquatic, usually found in or near freshwater ponds, streams, or rivers with riparian vegetation.	**Present**. Documented within the Proposed Action Area.	Yes

	Scientific Name Common Name	ESA / CESA Global / State Rank CDFW Status	Nesting/ Breeding Period	Habitat Preference	Potential to Occur in Proposed Action Area	Detected During Project Surveys
	Birds					
7.	***Aquila chrysaetos*** Golden eagle	None/None G5/S3 FP, BCC	February—August	Variety of habitats with suitable foraging and nesting locations, including oak woodlands, grassland, and coniferous forests. More widespread during winter and migration.	**Not expected (nesting)**. Documented near the Proposed Action Area in the past but not expected to nest nearby.	No
8.	***Elanus leucurus*** White-tailed kite	None/None G5/S3S4 FP	February—August	Grassland, oak savannah, open areas with low vegetation.	**Not expected (nesting)**. Documented in winter within the Proposed Action Area but not expected to nest nearby.	Yes
9.	***Falco peregrinus anatum*** American peregrine falcon	Delisted/ Delisted G4T4/S3S4 FP, BCC	March—August	Wide variety of habitats during migration and winter. Breeding requires sheltered ledges on cliffs or tall manmade structures.	**Present (nesting)**. Documented within the Action Area and nests within the survey area at Pt. Pedernales.	Yes
10.	***Haliaeetus leucocephalus*** Bald eagle	Delisted/CE G5/S3 FP, BCC	March—September	Variety of habitats during migration and during winter, generally near large bodies of fresh water.	**Not expected (nesting)**. Could occur within the Proposed Action Area but not expected to nest nearby.	No
11.	***Icteria virens*** Yellow-breasted chat*	None/None G5/S3 SSC	May—August	Requires dense riparian thickets for breeding.	**Not expected (nesting).** Limited potential breeding habitat and not expected to nest nearby.	No
12.	***Lanius ludovicianus*** Loggerhead shrike	None/None G4/S4 SSC, BCC	February—July	Requires open areas with scattered shrubs for breeding.	**Not expected (nesting).** Limited potential breeding habitat and not expected to nest nearby.	Yes
13.	***Limnodromus griseus*** Short-billed dowitcher	None/None G5/SNR BCC	n/a	During migration may use tidal marshes and mudflats, lagoons, shorelines.	**Low (migration).** Could occur in the Honda Creek estuary or on Honda Beach during migration.	No
14.	***Limosa fedoa*** Marbled godwit	None/None G5/SNR BCC	n/a	During migration may use tidal marshes and mudflats, lagoons, shorelines.	**High (migration)**. Documented within the Survey area and expected in the Honda Creek estuary or on Honda Beach during migration.	No

	Scientific Name Common Name	ESA / CESA Global / State Rank CDFW Status	Nesting/ Breeding Period	Habitat Preference	Potential to Occur in Proposed Action Area	Detected During Project Surveys
15.	***Numenius americanus*** Long-billed curlew	None/None G5/S2 WL, BCC	n/a	During migration may use tidal marshes and mudflats, lagoons, shorelines, marsh vegetation, sand dunes.	**High (migration)**. Documented within the Survey area and expected in the Honda Creek estuary or on Honda Beach during migration.	Yes
16.	***Numenius phaeopus*** Whimbrel	None/None G5/SNR BCC	n/a	During migration may use tidal marshes and mudflats, lagoons, shorelines, marsh vegetation, sand dunes.	**High (migration)**. Documented within the Survey area and expected in the Honda Creek estuary or on Honda Beach during migration.	Yes
17.	***Selasphorus sasin*** Allen's hummingbird	None/None G5/S4 SA, BCC	February—July	Coastal riparian and urban areas.	**Low (nesting)**. Potential breeder in Honda Creek riparian. Expected as a migrant.	No
18.	***Setophaga petechia*** Yellow warbler*	None/None G5/S3S4 SSC, BCC	May—August	Riparian, including willows, cottonwoods.	**Not expected (nesting).** Limited potential breeding habitat and not expected to nest within the Proposed Action Area. Expected as a migrant.	No
19.	***Spinus lawrencei*** Lawrence's goldfinch	None/None G3G4/S4 SA, BCC	April—August	Oak woodlands, riparian, including willows, cottonwoods, chaparral, coastal sage scrub.	**Low (nesting).** Documented within the Proposed Action Area and low likelihood of nesting. Expected as a migrant.	Yes
20.	***Tringa semipalmata*** Willet	None/None G5/SNR BCC	n/a	During migration may use tidal marshes and mudflats, lagoons, shorelines.	**High (migration)**. Highly likely to occur in the Honda Creek estuary or on Honda Beach during migration.	Yes
	Mammals					
21.	***Antrozous pallidus*** Pallid bat	None/None G4/S3 SSC	Spring–Summer	Usually roosts in caves, mines, or crevices, but may use buildings, tree hollows. Night roosts may be in more open sites. Occupies varied habitats but especially open arid areas with rocky roosting habitat.	**Present.** Documented within the Action Area for foraging. Roosting unsuitable under bridge due to frequent train activity.	Likely present
22.	***Corynorhinus townsendii***	None/None G4/S2 SSC	Late spring–early summer	Caves, mines, buildings, or other cavern-like structures required for roosting. Throughout California in	**Present.** Documented within the Action Area for foraging. Roosting	Likely present

	Scientific Name Common Name	ESA / CESA Global / State Rank CDFW Status	Nesting/ Breeding Period	Habitat Preference	Potential to Occur in Proposed Action Area	Detected During Project Surveys
	Townsend's big-eared bat			a wide variety of habitats but most common in mesic sites.	unsuitable under bridge due to frequent train activity.	
23.	***Lasiurus blossevillii*** Western red bat	None/None G4/S3 SSC	Spring– Summer	Primarily roosts in trees but may use shrubs. Prefers habitat edges and mosaics with trees near open areas for foraging.	**High.** Documented within two miles of the Action Area, species likely uses Action Area for foraging. Roosting habitat potentially suitable within riparian habitat.	Likely present
24.	***Lasiurus cinereus*** Hoary bat	None/None G3G4/S4 SA	Spring– Summer	Primarily roosts in trees. Requires access to water and prefers open habitats or mosaics with trees near open areas for foraging.	**High.** Documented within two miles of the Action Area species likely uses Action Area for foraging. Roosting habitat potentially suitable within riparian habitat.	Likely present
25.	***Myotis yumanensis*** Yuma myotis	None/None G5/S4 SA	Spring– Summer	Roosts in buildings, mines, caves, under bridges, in crevices. Requires access to water and prefers open forest or woodland.	**High.** Documented within two miles of the Action Area for foraging. Roosting unsuitable under bridge due to frequent train activity.	Likely present

* Not in the CNDDB for the search area but species could occur †Rare taxa recently described, or taxonomy recently changed, thus not yet afforded special status or G/S rank

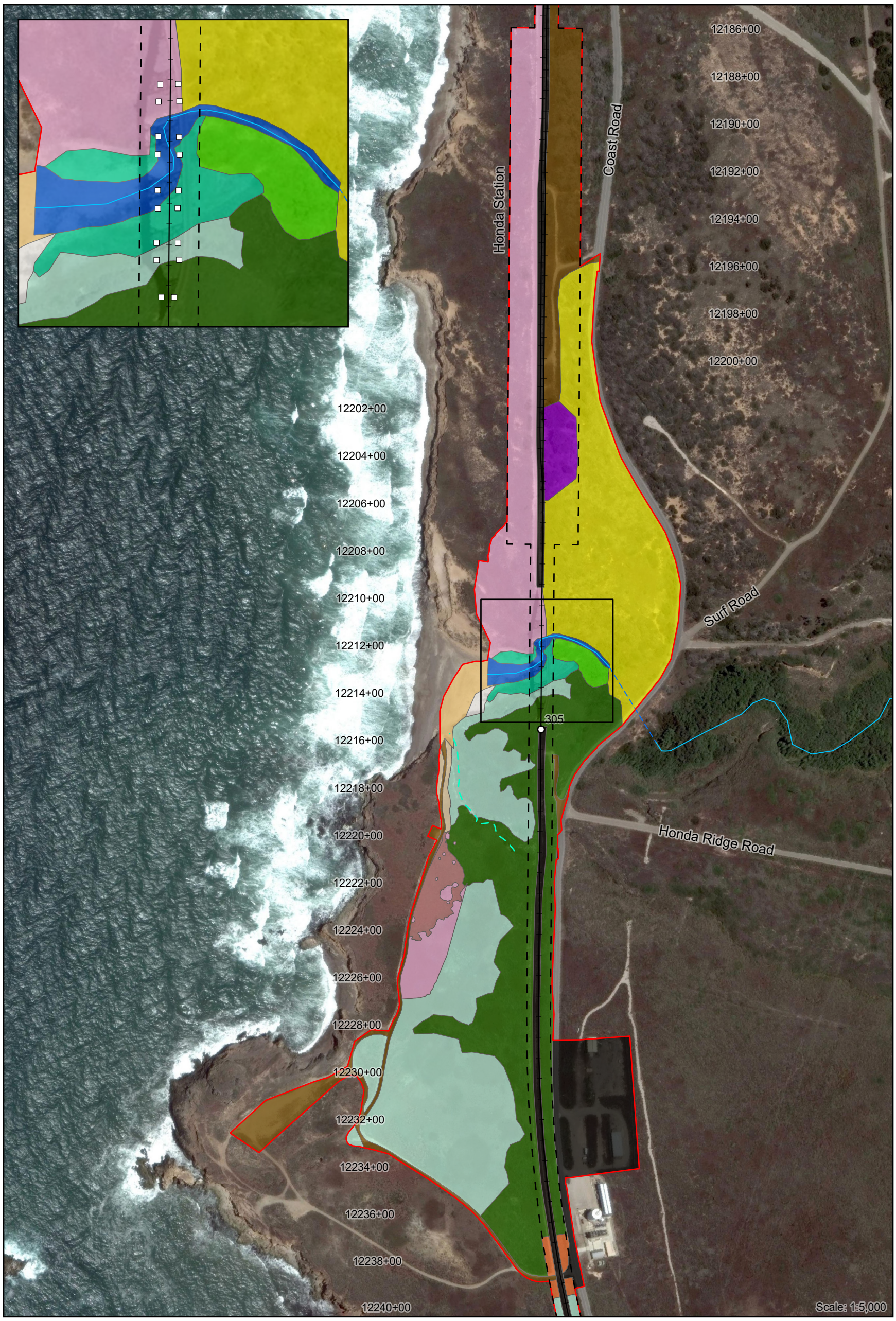
Federal and California ESA Abbreviations:
- FE: Federally Endangered
- FT: Federally Threatened
- FCL: Federal Candidate for Listing
- PT: Proposed Federally Threatened
- CE: California Endangered
- CT: California Threatened
- CCE: Candidate for California Endangered
- CCT: Candidate for California Threatened

Global/State Ranks:
- G1/S1 – Critically Imperiled
- G2/S2 – Imperiled
- G3/S3 – Vulnerable
- G4/S4 – Apparently Secure
- G5/S5 – Secure
- GNR/SNR – Unranked
- Q – Element is ranked but may refer to a population rather than a taxon.
- Range rank – (e.g., S2S3 means rank is somewhere between S2 and S3)
- ? – (e.g., S2? Means rank is more certain than S2S3 but less certain that S2)
- T – Ranks for infraspecific taxa

CDFW Rank:
- WL: Watch List
- SSC: Species of Special Concern
- FP: Fully Protected
- SA: Special Animal

USFWS:
- BCC: Bird Species of Conservation Concern

Figure 3-1. Vegetation Types



Legend

- Survey Area
- UPRR Property
- Railroad Track
- Ephemeral Drainage
- Honda Creek
- Culvert
- Existing Honda Bridge Pedestals
- Milepost

Vegetation Types

- Acacia
- Central Coast Arroyo Willow Riparian Forest and Scrub
- Central Coastal Scrub
- Central Coastal Scrub/Iceplant
- Coastal Bluff
- Coastal Brackish/Salt Marsh
- Coastal Strand
- Developed
- Disturbed/Cleared
- Disturbed/Iceplant
- Foredune
- Iceplant
- Nonnative Annuals and *Oxalis*
- Nonnative Trees
- Seasonal Open Water

N

0 250 500 Feet

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.61971°W 34.64141°N
Santa Barbara County, California

Honda Bridge Action Area
Basemap: Google Maps Satellite

Map Updated: April 19, 2023 05:09 PM by SAF

**Engineering Station Numbers displayed on map frame for reference to Bridge Construction Blueprints*

3.2.2 Existing Conditions

3.2.2.1 Vegetation Types

Thirteen vegetation/habitat types were identified in the Action Area, based on a modified Holland (1986) classification used by SLD 30 (WR 2009; see Table 3-6 for Manual of California Vegetation names). Types and dominant species (if applicable) include acacia (*Acacia longifolia, Carpobrotus edulis, C. chilensis*), central coast arroyo willow riparian and scrub (*Salix lasiolepis, Rubus ursinus, Toxicodendron diversilobum*), central coastal scrub (*Artemisia californica, Baccharis pilularis, Leptosyne gigantea, Eriogonum parviflorum*), central coastal scrub/iceplant (*Carpobrotus* spp., *Artemisia californica, Leptosyne gigantea*), coastal bluff (*Eriogonum parviflorum, Extriplex californica, Dudleya caespitosa*), coastal brackish/salt marsh (*Jaumea carnosa, Frankenia salina, Distichlis spicata*), coastal strand (mostly bare sand, with occasional *Atriplex leucophylla, Cakile maritima*), developed land, disturbed/cleared land, foredune (*Carpobrotus edulis, Cakile maritime, Ambrosia chamissonis*), iceplant (*Carpobrotus* spp.), and seasonal open water. Two additional habitat types, central dune scrub/iceplant (*Carpobrotus* spp., *Leptosyne gigantea, Lupinus chamissonis, Ericameria ericoides*) and nonnative trees (*Eucalyptus* spp., *Hesperocyparis macrocarpa),* occur adjacent to the Action Area and were part of the biological survey area (Figure 3-1). Sensitive vegetation communities within the Action Area include central coast arroyo willow riparian and scrub (*Salix lasiolepis* association; CNPS 2022a, CCC ESHA), central coastal scrub (CCC ESHA), coastal bluff (CCC ESHA), coastal brackish/salt marsh (*Frankenia salina* alliance; CNPS 2022a, CCC ESHA), and seasonal open water (CCC ESHA). The location and status of each type is summarized in Table 3-6.

TABLE 3-6. VEGETATION TYPES WITHIN THE ACTION AREA

Vegetation/Habitat Type (WR 2009)	Acres	Manual of California Vegetation (CNPS 2022a)	Global/ State Rank	Other Rank(s)
Central Coast Arroyo Willow Riparian Forest and Scrub	0.55	Arroyo willow thickets	Unranked	Sensitive (CDFW), ESHA (CCC)
Central Coastal Scrub	1.60	California sagebrush - (purple sage) scrub	G5/S5	--
Central Coastal Scrub/Iceplant	0.70	California sagebrush - (purple sage) scrub / Iceplant mats	G5/S5	--
Coastal Bluff	0.30	Not listed	--	ESHA (CCC)
Coastal Brackish/Salt Marsh	0.79	Alkali heath marsh/ salt grass flats	G4/S3	Sensitive (CDFW) ESHA (CCC)
Coastal Strand	0.20	--	--	ESHA (CCC)
Foredune	0.07	Iceplant mats	--	ESHA (CCC)
Seasonal Open Water	0.67	--	--	Sensitive (CDFW) ESHA (CCC)
Acacia	12.42*	Not listed	--	--
Developed Land	4.20	--	--	--

Vegetation/Habitat Type (WR 2009)	Acres	Manual of California Vegetation (CNPS 2022a)	Global/ State Rank	Other Rank(s)
Disturbed/Cleared Land	5.90	--	--	--
Disturbed/Iceplant	0.30	--	--	--
Iceplant	1.62	Iceplant mats	--	--
Nonnative Annuals and *Oxalis pes-caprae*	1.07	Not listed	--	--
TOTAL	30.39	*Approximately 10.3 acres of post-project restoration is included in Action Area		

3.2.2.2 Wetlands and Waters of the United States

Althouse and Meade biologists conducted field work in 2018 and 2021 and delineated 7.16 acres (Table 3-7) of jurisdictional wetland and non-wetland waters within the survey area. Specifically, 6.74 acres of federal and state jurisdiction and 0.42-acre of state jurisdiction only.

The first of two federal wetland features is a palustrine, emergent, non-tidal wetland dominated by multi-stemmed arroyo willows and marsh baccharis (*Baccharis glutinosa*) on the eastern side of Honda Creek upstream of Honda Bridge. The second wetland feature is an herbaceous brackish wetland dominated by marsh jaumea, alkali heath, and saltgrass. This feature begins where salt-tolerant vegetation appears just upstream of the bridge and the feature continues downstream until the beach no longer supports vegetation.

Three federal and state non-wetland waters are present within the survey area: (1) Honda Creek, (2) an unnamed ephemeral drainage, and (3) the Pacific Ocean. Within the Action Area, Honda Creek (1) exits from two culvert pipes below Coast Road, then flows west for approximately 135 yards, flows beneath the existing bridge, then flows another 135 yards to the ocean. The creek bed is mostly unvegetated and has water marks, sediment deposits, drift deposits, and flow patterns. In 2018, water was present in the low flow channel and terminated in a closed lagoon above the beach. This feature was absent for much of 2021 and 2022 due to low rainfall. An unnamed ephemeral drainage (2) originates south of lower Honda Ridge and flows west and adjacent to Honda Ridge Road for approximately 1.3 miles then through a culvert under Coast Road and the railroad before terminating on the beach east of the lower beach access road. This drainage only conveys water during storm events. The lower reach of the drainage exhibits hydrology indicators including drainage patterns, ripples, and sediment deposits. To the west, the Action Area is bordered by the Pacific Ocean (3), classified as a) unconsolidated sand bottom, subtidal marine, and b) unconsolidated sand shore, intertidal, and marine water habitats. These areas are considered tidal non-wetland waters per USACE standards. The subtidal and intertidal areas comprise 4.52 acres within the survey area.

Two additional areas may be considered jurisdictional by state agencies: a patch of marsh jaumea and marsh bulrush with no hydric soil indicators, and a patch of arroyo willow riparian woodland near the Coast Road culverts that formed on a berm adjacent to Honda Creek.

TABLE 3-7. JURISDICTIONAL MEASUREMENTS

Jurisdiction	Area (acres)
Federal and state wetland	0.92
State wetland and riparian	0.42
Federal and State non-wetland waters	5.82
TOTAL	**7.16**

3.2.2.3 Botanical Resources

For purposes of this EA, special status plant species are those listed, proposed for listing, or candidates for listing as threatened or endangered by the USFWS under the FESA; those listed or proposed for listing as rare, threatened, or endangered by the CDFW under the CESA; and plants with a California Rare Plant Rank (CRPR) of 1, 2, 3, or 4. The various qualifications are listed in the special status species Table 3-4 for each species with potential to occur in the Action Area.

Based on survey data, historic records, and recent records, 30 special status plant taxa are known to occur within the vicinity of the Action Area and are addressed in Table 3-4. Of those taxa, 13 are present: ocean bluff milkvetch (*Astragalus nuttallii* var. *nuttallii*), coastal goosefoot (*Chenopodium littoreum*), surf thistle (*Cirsium rhothophilum*), Blochman's leafy daisy (*Erigeron blochmaniae*), suffrutescent wallflower (*Erysimum suffrutescens*), ocellated Humboldt lily (*Lilium humboldtii* subsp. *ocellatum*), dunedelion (*Malacothrix incana*), crisp monardella (*Monardella undulata* subsp. *crispa*), San Luis Obispo monardella (*Monardella undulata* subsp. *undulata*), CA spineflower (*Mucronea californica*), black-flowered figwort (*Scrophularia atrata*), and Blochman's ragwort (*Senecio blochmaniae*); one special status plant taxa has a high potential to occur: southern curly-leaved monardella (*Monardella sinuata* subsp. *sinuate*); and eight special status plant taxa have a low potential to occur: red sand-verbena (*Abronia maritima*), Coulter's saltbush (*Atriplex coulteri*), Santa Barbara ceanothus (*Ceanothus impressus* var. impressus), western dichondra (*Dichondra occidentalis*), beach spectaclepod (*Dithyrea maritima*), saint's daisy (*Erigeron sanctarum*), Kellogg's horkelia (*Horkelia cuneata* var. *sericea*), California walnut (*Juglans californica*). Life histories for these 22 special status plant taxa are presented in Appendix N. The remaining eight special status plant taxa are not expected to occur within the Action Area (Table 3-4). Current occurrence records are depicted on Figure 3-2 and Figure 3-3 for federal and State-listed species, respectively. The Action Area does not include any USFWS-designated critical habitat (USFWS 2021b).

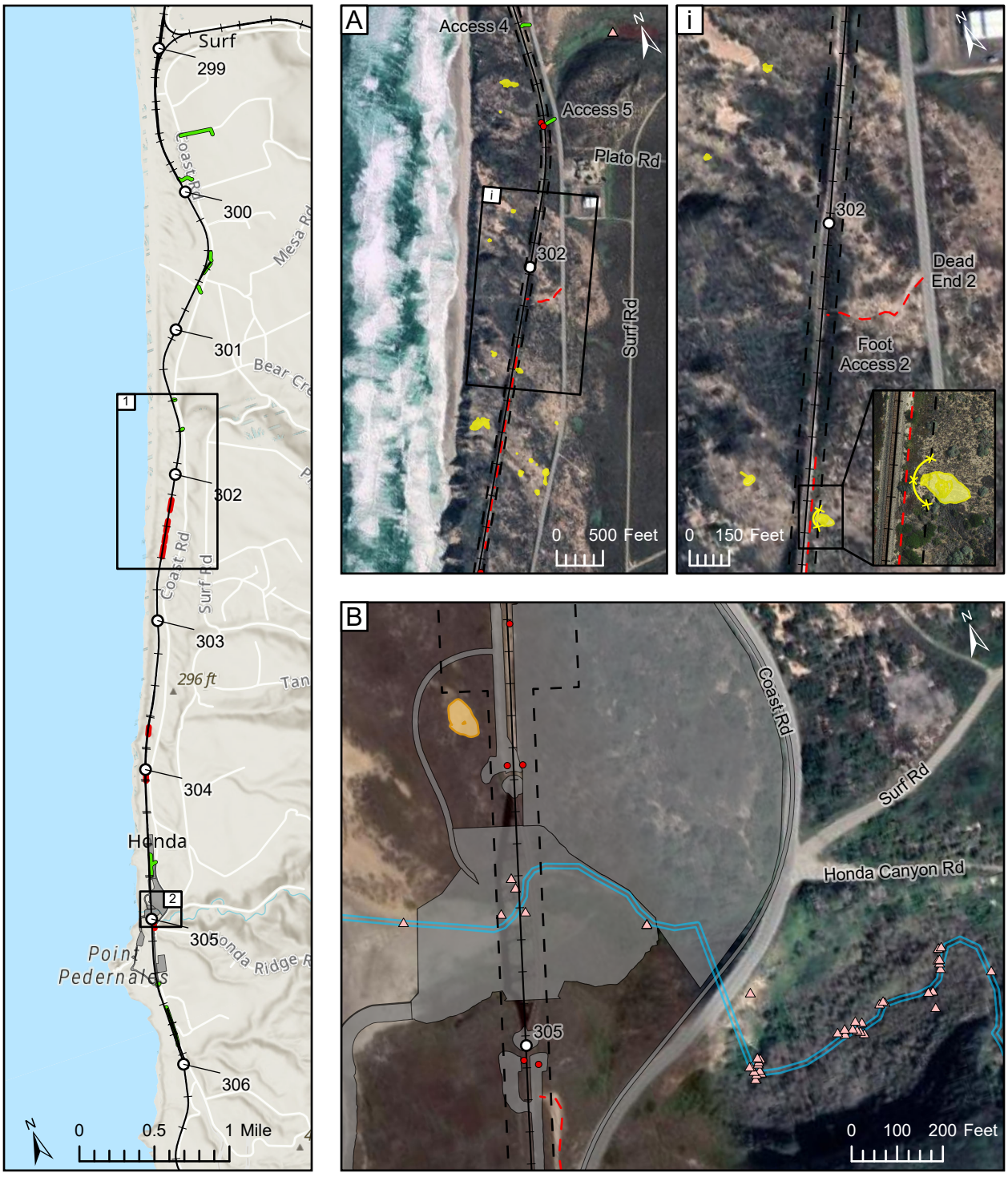
3.2.2.4 Wildlife Resources

For purposes of this EA, special status animal species are those proposed for listing, or candidates for listing as threatened or endangered by the USFWS under the FESA; those listed or proposed for listing as rare, threatened, or endangered by the CDFW under the CESA; and animals designated as "Species of Special Concern," "Fully Protected," or "Watch List" by the CDFW. The various qualifications are listed in the special status species Table 3-5 for each species with potential to occur in the Action Area.

Based on survey data, historic records, and recent records, 25 special status animal taxa are known to occur within the vicinity of the Action Area and are addressed in Table 3-5. Of those taxa, six are present: California red-legged frog (*Rana draytonii*), northern California legless lizard (*Anniella pulchra*), two-striped garter snake (*Thamnophis hammondii*), American peregrine falcon

(*Falco peregrinus anatum*), pallid bat (*Antrozous pallidus*), and Townsend's big-eared bat (*Corynorhinus townsendii*); eight special status animal taxa have a high potential to occur: southwestern pond turtle (*Actinemys pallida*), marbled godwit (*Limosa fedoa*), long-billed curlew (*Numenius americanus*), whimbrel (*Numenius phaeopus*), willet (*Tringa semipalmata*), western red bat (*Lasiurus blossevillii*), hoary bat (*Lasiurus cinereus*), and Yuma myotis (*Myotis yumanensis*); and three special status animal taxa have a low potential to occur: short-billed dowitcher (*Limnodromus griseus*), Allen's hummingbird (*Selasphorus sasin*), and Lawrence's goldfinch (*Spinus lawrencei*). Life histories for these 17 special status animal taxa are presented in Appendix N. The remaining eight special status animal taxa are not expected to occur within the Action Area (Table 3-5). Current occurrence records are depicted on Figure 3-2 and Figure 3-4 for federal and State-listed species, respectively. The Action Area does not include any designated or proposed critical habitat designated by the National Marine Fisheries Service (NMFS) or the USFWS (Figure 3-5; NOAA 2022a; USFWS 2021b); however, it is immediately adjacent to black abalone critical habitat. Brief life histories are also presented in Appendix N for two additional animals of conservation concern: Arguello salamander (*Batrachoseps wakei*) and buckwheat blue butterfly (*Euphilotes battoides*).

Figure 3-2. Federally-Listed Plant & Animal Species In Proximity to The Action Area



Legend

- Action Area
- UPRR Property
- Railroad Track
- Truck Access
- Trail Access
- No Access
- Milepost
- Hand Hole Location
- Tidewater Goby (Historic Extent) *
- Beach Layia (EO #28) *
- Beach Layia (EO #1) *
- Beach Layia Protection Fence
- California Red-legged Frog *

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.62315°W 34.63758°N
Santa Barbara County, California

Basemap(s):
ESRI World Topographic
Google Maps Satellite

Data:
*VSFB is the originator of the displayed data
(Controlled Unclassified Information)

Map Updated: November 01, 2022 09:28 PM by ZAR

Figure 3-3. State-Listed Plant Species In Proximity to The Action Area



Legend

- Action Area
- UPRR Property
- Railroad Track
- Truck Access
- Trail Access
- No Vehicle Access
- Fire Hydrant
- Hand Hole Location
- Milepost

CNDDB Records

- Beach layia
- Beach spectaclepod
- Black-flowered figwort
- Blochman's leafy daisy
- Coastal goosefoot
- Coulter's goldfields
- Crisp monardella
- Gaviota tarplant
- Kellogg's horkelia
- Mesa horkelia
- Point Arguello monardella
- Robinson's pepper-grass
- San Luis Obispo monardella
- Sand mesa manzanita
- Santa Barbara ceanothus
- Southern curly-leaved monardella
- Surf thistle

N

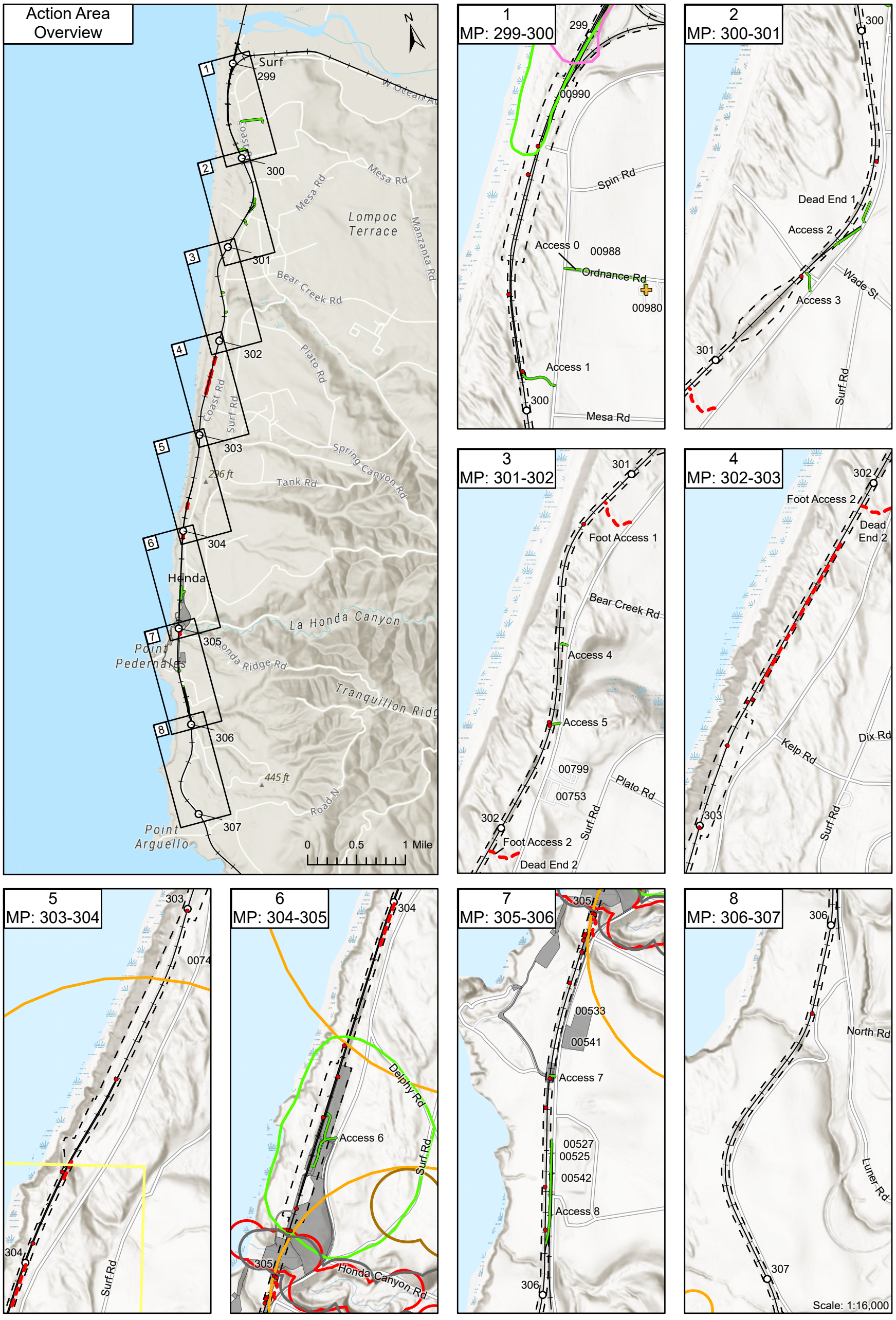
0 1,000 2,000 Feet

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.62086°W 34.6332°N
Santa Barbara County, California

Action Area Overview
Basemap: ESRI World Topographic
Inset Maps (1-8)
Basemap: ESRI World Terrain

Map Updated: April 20, 2023 10:37 AM by SAF

Figure 3-4. State-Listed Animal Species In Proximity to The Action Area



Legend

- Action Area
- UPRR Property
- Railroad Track
- Truck Access
- Trail Access
- No Vehicle Access
- Fire Hydrant
- Milepost
- Hand Hole Location

CNDDB Records

- American peregrine falcon
- California red-legged frog
- Monarch - California overwintering population
- Northern California legless lizard
- Pallid bat
- Townsend's big-eared bat
- Western snowy plover

N

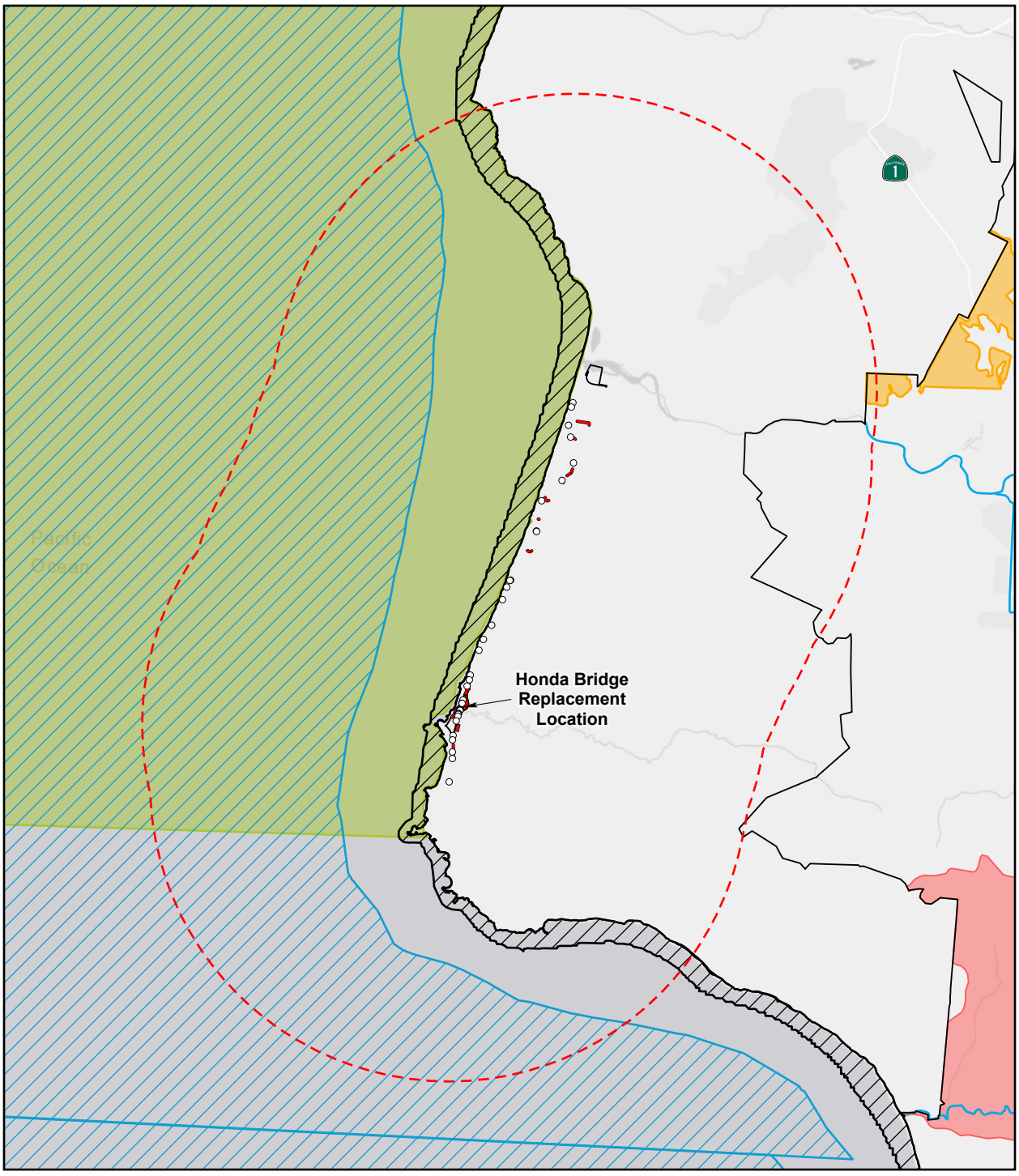
0 1,000 2,000 Feet

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.62086°W 34.6332°N
Santa Barbara County, California

Action Area Overview
Basemap: ESRI World Topographic
Inset Maps (1-8)
Basemap: ESRI World Terrain

Map Updated: April 20, 2023 10:37 AM by ZAR

Figure 3-5. National Marine Fisheries Service and United States Fish and Wildlife Service Designated Critical Habitat



Legend

- 5-Mile Buffer
- Action Area
- Hand Hole Location
- Action Area/Access
- USFWS Critical Habitat
- California red-legged frog
- Vandenberg monkeyflower
- VSFB Boundary
- NMFS Critical Habitat
- Black abalone
- Humpback whale
- Leatherback turtle
- Southern Steelhead

N

0 1 2 Miles

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.62244°W 34.63748°N
Santa Barbara County, California

NMFS/USFWS Critical Habitat Data Last Updated: April 2021

Map Updated: April 20, 2023 10:59 AM by SAF

3.3 Water Resources

3.3.1 Regulatory Setting

3.3.1.1 Clean Water Act (CWA)

The federal CWA provides for the restoration and maintenance of the physical, chemical, and biological integrity of the nation's waters. The CWA and associated EPA regulations provide the authority and framework for state regulations.

Section 404 of the CWA establishes a permit program administered by the USACE. Section 404 regulates the discharge of dredged or fill material into waters of the United States (including wetlands). The USACE asserts jurisdiction over wetlands that exhibit hydrology, hydric soil, and hydrophytic vegetation (three indicators) by the standard set forth in the Arid West Regional Supplement (USACE 2008a). These areas must also exhibit a significant nexus to a Traditionally Navigable Water (TNW). For non-wetland water features, USACE jurisdiction is limited to the Ordinary High Water Mark (OHWM).

The SWRCB and RWQCB administer CWA and state regulations.

Section 402 of the Clean Water Act mandates that point source discharges to surface water or to the ocean are subject to the NPDES permit program (USEPA 2022b). The RWQCB is responsible for management of the NPDES Construction General Permit process for CA. The Central Coast RWQCB is the local agency responsible for the VSFB area.

The **NPDES Construction General Permit** reduces or eliminates pollutants in stormwater and non-stormwater discharges associated with construction activities through BMPs, site inspections, and monitoring to evaluate the effectiveness of the permit implementation actions.

Section 401 of the Clean Water Act requires that any applicant for a Section 404 permit also obtain a Water Quality Certification from the State (401 Certification). The Water Code defines "waters of the State" broadly to include "any surface water or groundwater, including saline waters, [natural, and artificial wetlands] within the boundaries of the state." In April 2019, the State Water Resources Control Board (SWRCB) adopted procedures to define an area as a wetland if it meets three indicators: wetland hydrology, wetland soils, and (if vegetated) wetland plants. The definition also states: "An area is a wetland if: (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation. The Procedures provide the same wetland delineation methods that are used by the Army Corps of Engineers."

"Waters of the State, by definition, includes more aquatic features than Waters of the U.S., which defines the jurisdiction of the federal government. Waters of the State are not so limited. In addition, the federal definition of a wetland requires a prevalence of wetland vegetation under normal circumstances. To account for wetlands in arid portions of the state, the Water Board's definition differs from the federal definition in that an area may be a wetland even if it does not support vegetation. If vegetation is present, however, the Water Board's definition requires that the vegetation be wetland vegetation. The State Water Board's proposed definition clarifies that vegetated and unvegetated wetlands would be regulated in the same manner." The effective date for the approved Procedures is May 28, 2020.

The state would also take jurisdiction over a non-wetland water to the OHWM, and tidal waters to the higher high tide line (CWA section 404 jurisdiction). RWQCB provide regulatory oversight of wetland protection and impact mitigation.

Discharge of wastewater (industrial, domestic, drinking water) is regulated by the **CA Water Code Division 7, Article 4** and **CA Code of Regulations Title 27, Division 2**. Discharge of hazardous substances is not permitted under any circumstances. SLD 30 Environmental, Water Resources staff would review all requests for discharges of wastewater to grade (Discharge to Grade Program) to protect groundwater quality and comply with State water quality regulations. Wastewater that contains contaminants above certain levels shall not be discharged to grade.

3.3.1.2 Executive Order (EO)

EO 11990, Protection of Wetlands requires federal agencies to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. Federal agencies must avoid undertaking or providing assistance for new construction located in wetlands unless there is no practicable alternative to such construction and the proposed action includes all feasible measures to minimize harm to wetlands that may result from such use.

EO 11988, Floodplain Management directs all federal agencies to avoid, to the extent possible, the long- and short-term impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. In 2015, **EO 13690** established a Federal Flood Risk Management Standard and process to ensure agencies expand flood management to a higher vertical elevation that corresponds with the horizontal floodplain. This is to address current and future flood risk due to the effects of climate change and amends EO 11988.

3.3.2 Existing Conditions

Honda Creek lies south of two major drainage basins (San Antonio Creek and Santa Ynez River) and drains a total area of approximately 12 square miles. The creek flows westward, discharging into the Pacific Ocean just beyond the Honda Bridge. Surface flow is perennial to Coast Road and may transition to sub-surface flow near the creek mouth during the summer or during low rainfall years. The Action Area is at the Honda Creek mouth and immediately upstream from the creek's terminus in the Pacific Ocean. The ROI considered in this EA for water resources is the Honda Creek drainage basin from Coast Road downstream to the Pacific Ocean.

3.3.2.1 Surface Water and Floodplains

The major freshwater resources of the VSFB region include six streams, comprising two major drainages (San Antonio Creek and the Santa Ynez River) and four minor drainages. Honda Creek, a minor drainage, is the only significant freshwater resource within the Proposed Action Area. Monthly stream flow on VSFB generally corresponds to trends in precipitation, although minor increases in precipitation are not always reflected in surface flows. Peak rainfall generally occurs between November and April. Average 30-year rainfall is just under 16 inches per year (July to June; WRCC 2021).

FEMA flood zone ratings (FEMA 2022) for the Action Area are Zone D from Coast Road to about 75 meters below the Honda Bridge and Zone VE for the remainder of Honda Beach which overlaps with small portions of the Action Area. Zone D indicates that a community or county is not mapped on any published Flood Insurance Rate Map but may have "possible but undetermined flood

hazards" while Zone VE indicates that the area is "subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action" (FEMA 2022). The Proposed Action (bridge replacement, construction and staging) would take place within the 100-year floodplain and is therefore subject to EO 11988, *Floodplain Management* and EO 13690, *Federal Flood Risk Management Standard* requirements and objectives. HDR analyzed the Action Area in the context of FEMA maps of national coastal hazards and Flood Insurance Rate Maps (FIRM), the USGS Coastal Storm Observing System (CoSMoS 3.0), UNSW CoastSat Profile Data (Vos et al., 2019), and oceanographic data (Appendix O). HDR also modeled temporary construction conditions relative to flooding and designed the temporary facilities to pass storms over 2-year event by safely overtopping contractor crossing (Appendix P). As shown in Figure 3-6, the existing bridge has a near zero difference on the base flood elevation between 100-year and 500-year floodplain inundation limits. The extent of the 100-year floodplain inundation limit is very close to the same extent for the 500-year floodplain inundation limit within Honda Canyon because of the steep canyon side slopes. Therefore, there is no adverse flood rise predicted to adjacent properties.

As analyzed in Section 2.2 and summarized in Table 2-1, the Proposed Action is limited to disturbances and losses to wetlands, waters, and floodplains to the minimum necessary to complete the Proposed Action, and no less environmentally damaging feasible alternative is available to lessen wetland, waters, and floodplain impacts. Among those alternatives analyzed are the offline alignment, cellular fill with arches, and long span. None of those alternatives met Selection Criteria 3 (minimize impacts). The long span alternative designs were evaluated to avoid or minimize the number of bridge supports within the wetland, waters, and floodplain, but had greater permanent impacts to wetland, waters, and floodplains or to cultural resources. Therefore, there is no practicable alternative for relocating the Proposed Action outside the wetland, waters, and floodplain.

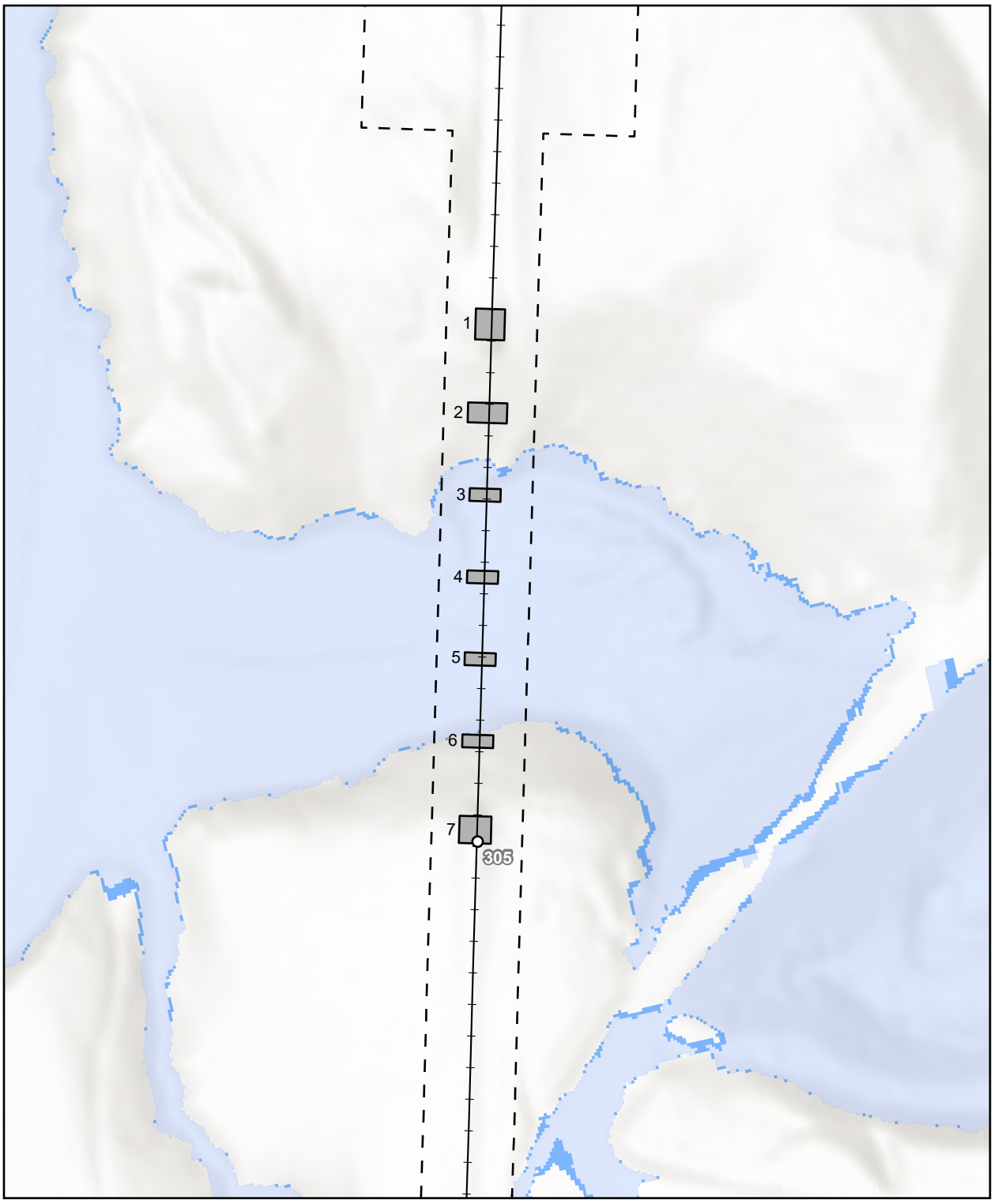
The Proposed Action would require NPDES Construction General Permit coverage as required by Section 402 of the CWA because the total disturbed area of the Proposed Action would occur in or near a riverbed and be greater than 1-acre. In addition, Proposed Actions that would affect Honda Creek would be within federal and state jurisdiction under Section 404 (USACE) and 401 (RWQCB) of the Clean Water Act (CWA), and the CA Coastal Commission's (CCC) Coastal Act.

3.3.2.2 Groundwater

The VSFB South Base water system uses San Antonio groundwater basin (Barka Slough) groundwater and surface water sourced from the State's Central Coast Water Authority. A direct water source is dependent on availability and/or other operating conditions. Currently, VSFB is using surface water allocated from the State Water Project.

The Action Area would include Honda Creek hydrologic floodplain where groundwater is present in alluvium and sand. No groundwater extraction currently occurs in the Honda Creek basin.

Figure 3-6. Floodplain Map



Legend

100-year Floodplain
500-year Floodplain
Piers and Abutments
Railroad Track
Milepost

N

0 100 200 Feet

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.63584°W 34.60808°N
Santa Barbara County

Basemap Source: Esri Hillshade
Data Source: VSFB is the originator of the displayed data
(Controlled Unclassified Information)

Map Updated: November 17, 2023 03:14 PM by SAF

3.4 Cultural Resources

Information contained within this section is derived from the DAF Section 106 compliance documentation that was submitted to the California State Historic Preservation Officer and the Santa Ynez Band of Chumash Indians, *Identification of Historic Properties and Findings of Adverse Effect, La Cañada Honda Bridge Replacement* (Ryan and McCormick 2022) and the associated Memorandum of Agreement (Appendix E). That documentation also includes a Cultural Resource Investigations report produced by Æ (Gerber et al. 2022) which identifies the Area of Potential Effect (APE), provides project details, describes archaeological field and laboratory methods, and analyzes archaeological results carried out in support of Section 106 compliance for the Proposed Action (Appendix D).

3.4.1 Regulatory Setting

Section 106 (codified at 54 United States Code [USC] 306108) of the National Historic Preservation Act (NHPA) of 1966, as amended (54 USC 300101 et seq.: Historic Preservation) requires federal agencies to consider the effects of federal undertakings upon historic properties, and to afford the Advisory Council on Historic Preservation an opportunity to comment upon the federal agency's Section 106 findings. Historic properties are defined as those that are included in the National Register of Historic Places (NRHP) or that meet specific eligibility criteria for listing in the NRHP. Federal regulations implementing Section 106 are found at Subpart B of 36 CFR 800 is *The Section 106 Process.*

The Proposed Action is a federal undertaking subject to compliance with Section 106 of the NHPA. Compliance with Section 106 also satisfies federal agencies' responsibilities for considering potential project-related effects on cultural resources under NEPA.

Criteria for National Register eligibility are set forth in 36 CFR 60.4 that states:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

a. *that are associated with events that have made a significant contribution to the broad patterns of our history; or*

b. *that are associated with the lives of persons significant in our past; or*

c. *that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*

d. *that have yielded, or may be likely to yield, information important in prehistory or history.*

For purposes of Section 106 compliance, if a cultural resource is listed in or eligible for the NRHP, it is considered a "historic property". Completion of the Section 106 process requires the federal agency to determine whether an undertaking would result in no historic properties affected, or no adverse effect to historic properties, or an adverse effect on historic properties that would then require agreement on measures that would resolve adverse effects to acceptable levels.

3.4.2 Prehistory and History

The earliest known archaeological site on VSFB, CA-SBA-1547, dates to approximately 11,000 years before present (B.P.). Four very early sites—one documented near the mouth of Honda Canyon (CA-SBA-530), two at the mouth of the Santa Ynez River (CA-SBA-246 and CA-SBA-931), and one in the Casmalia Hills (CA-SBA-772) —are identified as Paleocoastal. Based on the limited number of known sites that date to this period, it's likely that human population densities during the Paleocoastal Period on lands now known as VSFB were low (Glassow 1990, 1996; Lebow et al. 2001; Lebow et al. 2006; Lebow et al. 2007; Morattos 1984; Stevens 2012). Accounts by early explorers in the Santa Barbara Channel area documented Chumash people living in large, densely populated villages (e.g., Engelhardt 1933; Fages 1937; Font 1931; Moriarty and Keistman 1968; Palóu 1926; Simpson 1939; Teggart 1911; Wagner 1929). The **Mission Period** began with early Spanish explorers and missionaries seeking to establish ports, presidios, and missions in California's coastal regions, beginning with the Portolá expedition in 1769 A.D. and followed shortly thereafter by Juan Bautista de Anza's 1775-6 expedition of settlers to establish the San Francisco Presidio. Anza's expedition route is now commemorated as the Juan Bautista de Anza National Historic Trail. The **Rancho Period** of VSFB history began following secularization of the missions in 1833 and continued into the 1850s (Palmer 1999). Honda Canyon forms the boundary between the Rancho Punta de la Concepcion (La Espada) land grant to the south and the Rancho Lompoc land grant to the north. Increased population densities characterize the **Americanization Period** (1880–1915). Southern Pacific Railroad (SPRR) reached the project area and on March 31, 1901 the Coast Line was open to passenger and freight service between San Francisco and Los Angeles. Around 1898–1901, the Honda Section House was built for railroad and maintenance laborers just east of CA-SBA-212, in what is now recorded as CA-SBA-1145H. It was abandoned in the 1930s (Lebow et al. 2003; Maschner et al. 1991). Shipwrecks along VSFB's coastline increased during this period as maritime traffic flourished. The passenger steamer Santa Rosa ran aground at the mouth of Honda Creek on July 7, 1911. A temporary wharf was constructed to allow salvagers to scavenge materials. A tent city was established on the floodplain north of Honda Creek, below CA-SBA-530 (Palmer 1999). Agriculture continued to dominate the economy during the **Period of Regional Culture** (1915-1945). Camp Cooke was established in 1941 and deactivated at the end of World War II (Palmer 1999). An Army training facility was built. The **Suburban Period** (1945–1965) began with the end of World War II. The Army leased the area for ranching and farming. Camp Cooke was reactivated in 1950 for training during the Korean War. In November 1956, the Army transferred North Camp Cooke to USAF, and it was renamed Cooke AFB. In 1958 the base had its first missile launch and was renamed Vandenberg Air Force Base (VAFB, Palmer 1999). In 1964 south base was transferred to USAF from Army and Navy. Post-transfer use of both north and south VAFB has related primarily to the operation of missile launch and support facilities. After creation of United States Space Force (USSF) in 2019, the facility was renamed VSFB on May 14, 2021.

3.4.3 Background Research

As part of the Section 106 compliance study conducted for the Proposed Action (Gerber et al 2022), *Æ* completed an archaeological site record and literature search to identify previous archaeological studies and archaeological resources within the Area of Potential Effect (APE). Data sources examined included the Base Comprehensive Plan, Geographic Information System (GIS) and U.S. Geological Survey topographic maps. *Æ* also consulted staff at the 30 CES/CEI

regarding cultural resources within the APE. Reports from identified studies within the APE were thoroughly examined in *Æ*'s Section 106 compliance study (Gerber et al 2022).

3.4.4 Previously Recorded Sites

Background research revealed that 15 previously documented cultural resources exist within the APE. Table 3-8 provides a brief summary of each resource, including its NRHP status prior to this investigation. Prehistoric and historic site components are listed separately; with historic resources identified by "H".

TABLE 3-8. SUMMARY OF PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN ACTION AREA

Site No.	Descriptions/Site Type[a]	NRHP Status[b] Consultation Reference
CA-SBA-212	Prehistoric village with dense shell midden.	Determined eligible (2S2) USAF 850807A
CA-SBA-212H	Historic quarry that operated from 1899-1961.	Determined ineligible (6Y) USAF_2020-1006-001
CA-SBA-530	Multi-period site with dense shell midden, bone, and flaked-stone and ground stone artifacts.	Recommended eligible (3S)
CA-SBA-534	Density lithic artifact scatter	Determined eligible (2S) 078 0055275
CA-SBA-539	Low- to moderate density shell midden and chipping detritus	Determined eligible (2S2) 78 0055275
CA-SBA-669	Low-density shell midden	Unevaluated
CA-SBA-670	Low-density shell midden	Determined eligible (2S2) 078 0055275
CA-SBA-677	Moderate-density shell midden and chipping detritus	Recommended eligible (3S)
CA-SBA-678	High density-lithic scatter	Determined eligible (2S2) 078 0055275
CA-SBA-682	Low-density lithic scatter	Determined eligible (2S2) 078 0055275
CA-SBA-1129	Low-density lithic scatter	Determined eligible (2S2) 078 0055275
CA-SBA-1145	Low-density scatter of marine shell and lithic debitage	Determined eligible (2S2) 078 0055275
CA-SBA-1145H	Archaeological remains of the SPRR Honda Section House	Determined ineligible (6Y) USAF_2021_0916_001
CA-SBA-2920H	Archaeological remains of the SPRR Honda Station	Recommended ineligible (6Z)
CA-SBA-3804	Anza Trail	Determined ineligible (6Y) USAF_2022_1108_001

a. Site descriptions primarily from Smallwood and Ryan (2020)

b. Alphanumeric codes were adapted from the California Office of Historic Preservation (2004): 2S2 = previously determined individually eligible for the NRHP in consultation with the SHPO; 3S = appears eligible for NR as an individual property through survey evaluation; 6Y = previously determined ineligible in consultation with the SHPO; 6Z = found ineligible for NR through survey evaluation.

3.4.5 Section 106 Studies Conducted for the Proposed Action

Æ completed a Section 106 compliance investigation for the Proposed Action (Gerber et al. 2022 between December 2020 and August 2021 and in January of 2022. Presence/absence test excavations were performed in some areas to determine whether unidentified buried archaeological deposits were present as well as to refine boundaries of known resources. In areas where cultural resources could not be avoided, test excavations were performed to evaluate the significance of the archaeological deposit within the impact area and/or assess potential project effects. In total, Æ excavated 176 shovel test pits, some with hand auger excavations beyond 100 centimeters; 14 hand auger units; 10 mechanical auger units; 2 column samples; 4 sondages with hand auger units in the bottom; 4 historical archaeological deposit excavation units; and 2 1-by-1 meter test excavation units.

Æ caried out NRHP eligibility test excavation at three sites: CA-SBA-669, CA SBA-2920H, and at CA-SBA-4224, a new site that was discovered during the present investigation. Æ opined that CA-SBA-669 appeared eligible for the NRHP and that CA-SBA-2920H and CA-SBA-4224 did not appear eligible. CA-SBA-530 and CA-SBA-677 had been previously recommended eligible for the NRHP based on a large body of prior work. After reviewing all previous work at those sites, Æ opined that CA-SBA-530 and CA-SBA-677 also appear to be eligible for the NRHP.

Where the Proposed Action involved ground disturbance within NRHP-eligible or recommended-eligible archaeological resources, Æ performed test excavation to assess potential project effects upon archaeological deposits in those areas. Æ performed effects testing excavations at CA-SBA-212, -530, -539, -669, -670, and -1145.

Æ also documented and evaluated the significance of the previously unrecorded La Cañada Honda Bridge (P-42-041388) because it would be demolished and replaced as part of the Proposed Action. Æ opined that the bridge does not appear to be eligible for the NRHP.

3.5 Earth Resources

3.5.1 Geology and Soils

Regionally, VSFB's geologic setting is within the southwestern portion of the Santa Maria physiographic district, a region between the Santa Ynez Mountains to the south and east, San Rafael Mountains to the northeast, and the Pacific Ocean to the west. The primary geologic unit underlying VSFB is the Franciscan assemblage, a heterogeneous mélange of metamorphosed sedimentary and igneous rocks including greywacke, shale mixed with chert, metavolcanic and metaplutonic rocks, ultramafic rocks, limestone, and conglomerate (Dibblee 1988; Morgan et al. 1991). Geologic resources near the Action Area include Miocene marine and volcanic rocks and sand deposits of varying age. Monterey shale forms the walls of Honda Canyon in the vicinity of Honda Bridge and outcrops on the southern slope (Dibblee 1988). North and south of the canyon, the railroad travels atop a marine terrace that is overlain with dune sand deposits to the north, and silt, sand, and gravel deposits to the south (Dibblee 1988). Features east of the marine terraces include older deposits of dune sand and terrace silts, sands, and gravels, extensive exposures of Monterey and Rincon shales, the Tranquillon volcanics (which also form Point Pedernales), and various shales, claystones, and sandstones of the Franciscan assemblage (Dibblee 1988; Cole and Stanley 1995).

Soils on the coastal portions of VSFB are broadly characterized by sand dunes and alluvium (sediments that have been eroded, reshaped by water, and redeposited in a non-marine setting).

Near and within the Proposed Action Area, sandy soils dominate with a mix of younger, active dune sands and older Pleistocene sand deposits on upper marine terraces (Dibblee 1988; VSFB unpublished soil data). Soils mapped within the Action Area that cover at least 1 acre include dune land (a mix of young active sand dune soils and older Pleistocene sands), Baywood loamy sand, Oceano sand, Botella clay loam, Watsonville sandy loam, Santa Lucia stony soils, Tangair loamy sand, Elder loam, and Arguello shaly loam (VSFB unpublished soil data).

3.5.2 Geologic Hazards

Santa Barbara County is a seismically active area with major earthquakes occurring in the region about every 15 to 20 years (CSBPD 2015). Fault zones on VSFB include the Santa Ynez-Pacifico, Santa Ynez River-Honda, and the Lions Head-Los Alamos-Casmalia (Cummings and Johnson 1994; CGS 2022b). The Honda Bridge is not located within a State of CA Earthquake Fault Zone but is in the vicinity of the Santa Ynez River-Honda Fault Zone which has evidence of late quaternary displacement (CGS 2022b).

The Action Area lies within a seismically active portion of CA where earthquakes are the primary geologic hazard. The project location is subject to earthquake-induced shaking and bridge would be designed according to criteria specified by American Railway Engineering and Maintenance-of-Way Association (AREMA).

Liquefaction is a process in which strong ground shaking causes saturated soils to lose their strength and behave as fluid. The project area has not been evaluated by the CA Seismic Hazard Zonation Program (CGS 2022c), but the USAF (1987) and SBC (CSBOEM 2017) identify VSFB as having potential for “low severity liquefaction”. In addition, HDR performed a liquefaction analysis using a specialized software program (CLiq; GeoLogismiki 2006). The results are reported in the Geotechnical Design Report (HDR 2022b). Estimated liquefaction settlements were considered non-liquefiable at the top of the slopes where the abutments are; however, approximate liquefaction potential ranged from 1.5 to 5 inches for various seismic events within the Honda Creek area.

3.6 Hazardous Materials, Solid Waste, Human Health & Safety

3.6.1 Regulatory Setting

3.6.1.1 Hazardous Materials and Waste Management

Hazardous materials and wastes are those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (42 United State Code [USC] 9601-9675), Toxic Substances Control Act (15 USC 2601-2671), the Solid Waste Disposal Act as amended by Resource Conservation and Recovery Act (RCRA; 42 USC 6901-6992), and as defined in State laws and regulations.

Management of hazardous waste would comply with RCRA Subtitle C (40 CFR Part 240-299) and with CA Hazardous Waste Control Laws as administered by the CA EPA DTSC, under CCR Title 22, Division 4.5. These regulations require that hazardous wastes be handled, stored, transported, disposed of, or recycled according to defined procedures.

The Department of Transportation (DoT) regulates the transport of hazardous materials and waste. Anyone transporting hazardous materials or waste must obtain EPA identification numbers as

transporters. The EPA has incorporated DoT statutes (49 USC) into its regulatory scheme and has added other requirements such as record keeping and spill cleanup. Transporters of hazardous materials and waste at VSFB are regulated by the aforementioned laws and are DoT-certified transporters.

The State of CA passed Senate Bill 1374, amending PRC 42912, which addresses the issue of construction and demolition debris, diversion requirements, and the development of a model ordinance to be implemented by local jurisdictions. UPRR General Specifications (UPRR 2019) for removal of materials becomes the property of the contractor and are to be removed completely away from the site and disposed of in a legal manner. All materials classified as hazardous or special waste shall be disposed of by methods approved by UPRR at a pre-identified disposal facility. The contractor shall furnish DOT or U.S. EPA approved containers for collection and transport of demolished materials. Debris material shall be handled in accordance with EPA, State, and local regulations and taken to a permitted treatment, storage, and disposal facility.

3.6.1.2 Hazard Zones

Hazards associated with some past and present mission activities and operations on VSFB can constrain Action Area locations to ensure the health and safety of workers. The following hazard zones have been established on VSFB to protect workers:

Toxic hazard zones are areas established downwind of launch site operations to protect workers from exposure to toxic vapors emitted during the transfer or loading of liquid propellants or maintenance of launch systems. These zones can extend 20,000 or more feet from a launch site.

Missile/Space Launch Vehicle Flight Hazard Zones and Explosive Safety Zones are established under the flight path of missile or space launch vehicle launches to protect personnel from debris fall-out under the launch trajectory. Explosive safety zones are established from 75 to 5,000 ft around launch sites and buildings where rocket propellants are stored to protect personnel from potential explosive hazards. Both of these hazard zones must be evacuated before any launch.

Radiofrequency Radiation Hazard Areas are established around transmitters on VSFB that can present radiation hazards to people and potentially detonate electro-explosive devices. The size of the hazard areas varies, depending on the transmitter power and antenna reception.

Airfield Clear Zones, Lateral Clear Zones (LCZs) and Accident Potential Zones (APZs) are established around the VSFB airfield runway and contain restrictions on certain land uses. Clear zones and LCZs are areas where the accident potential is so high that land use restrictions prohibit reasonable use of the land. Clear zones occur at both ends of the runway, and LCZs extend 1,000 feet from both sides of the centerline along the length of the runway. The ground surface within the LCZ must be graded to certain requirements and kept clear of fixed or mobile objects, except for necessary navigational aids and meteorological equipment. There are two APZs, APZs I and II, which are less critical than clear zones but still possess significant potential for accidents. Acceptable uses within APZ I areas include industrial or manufacturing, communication and utilities transportation, wholesale trade, open space, recreation, and agriculture, but not uses that concentrate people in small areas. Acceptable uses within APZ II areas include low business services and commercial retail trade uses of low intensity or scale of operation, but not high-density operations.

Air Installation Compatible Use Zones (AICUZs) are areas where certain land uses are restricted due to the combination of the potential for accidents and noise and the need for clearance of obstacles.

UXO Closure Areas are areas on VSFB that were used as ordnance training ranges and have the potential to contain UXO. Any proposed work in these areas must be coordinated with the Weapons Safety and Explosive Ordnance Disposal offices. Depending on the area, escorts may or may not be required.

3.6.1.3 Occupational, Safety, and Health Administration (OSHA)

Federal and State OSHA regulations govern protection of personnel in the workplace. All construction activities, facility operations, and maintenance on VSFB are subject to federal OSHA regulations. In general, hazardous materials and waste include substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health (to workers), welfare, or the environment, when released into the environment.

Title 8 CCR 1529 limits exposure in all demolition and construction work to asbestos and ACMs.

Title 8 CCR 1532.1 sets a permissible exposure limit to lead in all construction work and construction-related work including alteration, repair, painting and decorating. The standard lead exposure limit is 50 micrograms of lead per cubic meter of air (50 /m3), averaged over an 8-hour workday. If lead is present, it is a requirement for employers, to make an initial determination or exposure assessment.

NESHAP are stationary source standards for hazardous air pollutants (HAPs). Compliance with NESHAP is required for asbestos and lead (Section 2.3.9.5).

3.6.2 Existing Conditions

3.6.2.1 Database Search

The federal Installation Restoration Program (IRP) was implemented at DoD facilities to identify, characterize, and restore hazardous substance release sites. There are currently 604 IRP sites in the database records throughout VSFB. IRP sites are defined as:

1. A site where a release of a hazardous chemical is known to occur.
2. An Area of Concern (AOC) where hazardous chemicals were used or stored, therefore a release might have occurred.
3. An Area of Interest (AOI) where hazardous chemicals might have been used or stored, therefore a release might have occurred.
4. The Military Munitions Response Program looks first at a larger area, defined as Munitions Response Areas. MRAs are/were further divided into Munitions Response Sites (MRS) according to munitions types.

To meet the EPA's Standards and Practice for All Appropriate Inquires (40 CFR Part 312), Environmental Data Resources, Inc. conducted a search of available environmental records (Appendix Q; EDR 2022). The search area included a 1.5 mile-radius around the Action Area plus 1.7 miles upstream Honda Creek corridor. The Action Area does not overlap with sites identified as IRP. However, there are two IRP sites, seven AOCs and nine AOIs within the 1.5 mile search

area. All of these sites are closed without conditions except two AOCs and one AOI, which are restricted to industrial land use.

3.6.2.2 FAA Notification

In accordance with 14 CFR Part 77.9 the FAA was notified for use of temporary project construction cranes. The FAA conducted an aeronautical study and a determination of hazard to navigation was received on June 30, 2022 (Appendix G).

3.6.2.3 Inspection Report

On May 3, 2022, Safety Management Systems (SMS) conducted surveys at Honda Bridge for asbestos, heavy metals, and polychlorinated biphenyls (PCBs) (Appendix R; SMS 2022). The surveys were conducted to identify ACMs and materials that involve special handling during demolition of bridge structures. Based on the evaluation of laboratory results and information gathered during the visual assessment, asbestos was identified in the gasket liner in the expansion joint of the north abutment. In addition, paint containing lead was identified in three different locations: (1) gray coating on 4-inch conduit along the base of the bridge, (2) silver/orange paint on the angle irons at the top of the bridge, and (3) tar and paint on the structural steel of the bridge.

Persons participating in construction activities may potentially be exposed to chemical, physical, or biological hazards. Construction activities would require the use of chemicals such as diesel fuels, hydraulic fluids, paints, solvents, and other typical chemicals required during construction and operation of heavy equipment. In addition, physical hazards (e.g. holes and ditches, uneven terrain, sharp or protruding objects, slippery soils or mud, and unstable ground) and biological hazards (e.g. poison oak, spiders, snakes, ticks) have the potential to be present near the Proposed Action and have the potential to impact the health and safety of workers.

3.7 Socioeconomics/Growth Inducing Effects

Socioeconomic resources include the population, income, employment, and housing conditions of a community or ROI. VSFB is approximately 155 square miles in area and is the largest community near Lompoc, Santa Maria, and Guadalupe. The total population of SBC, based on the April 2020 census report, is 448,229 (USCB 2021). VSFB supports a population greater than 18,000, made up of military personnel, their family members, contractors, and civilian employees (USSF 2021b). As the largest employer in SBC, the economy of SLD 30 consists of military personnel, civil servants, non-appropriated fund, contractor, and private business personnel. In addition, people on VSFB contribute to the economies of the Santa Barbara and San Luis Obispo region. The economic impact that the base has on surrounding communities and the State of CA is $1.75 billion/year (USAF 2019). Additionally, UPRR operates spur lines on North and South VSFB off the main line to provide local freight delivery. .

3.8 Land Use

VSFB covers approximately 99,604 acres in western SBC. VSFB is surrounded by the Santa Ynez Mountains, Pacific Ocean (42 miles of shoreline), and ranches in San Luis Obispo County (north) and SBC (south). North VSFB and south VSFB is divided by the Santa Ynez River. North VSFB is where the urbanized cantonment area is located, including various administrative, training, industrial, commercial, and residential land uses. North base is also used for missile test launch sites, space launch sites, and tracking facilities. South VSFB supports space launch sites, telemetry, and tracking facilities. Land use areas on both North and south VSFB include recreational use of

beaches by military personnel and the public. Immediately east of these recreational beach areas is open land set aside as security and safety buffer zones. UPRR passes through VSFB connecting coastal Los Angeles to San Francisco rail transportation. Spur lines on north and south VSFB operate off the main line to provide local freight delivery.

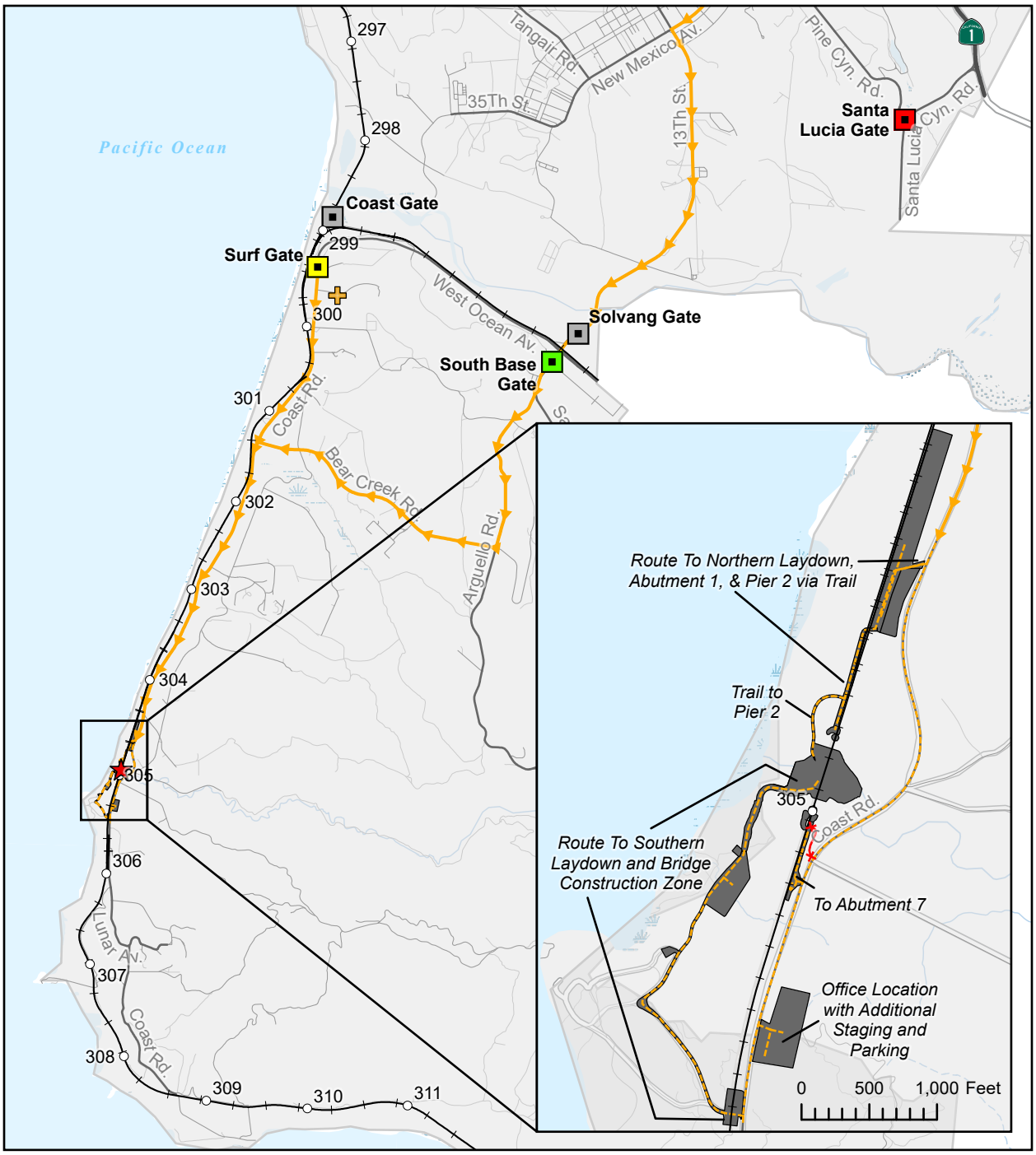
3.9 Transportation

Regional access to VSFB is provided by a network of highways, including US Highway 101, US Highway 1, SR 135, and SR 246. Primary access to south VSFB would be through the South Base Gate via West Ocean Avenue. Secondary access may utilize Surf Gate (also via W. Ocean Ave.), but it is not accessible for normal VSFB traffic. Roadways in the immediate project vicinity include Coast Road, Bear Creek Road, Kelp Road, Delphy Road, Surf Road, Honda Canyon Road, Honda Ridge Road, Luner Road, and multiple unnamed access roads (Figure 3-7). Three direct access points would be utilized from Coast Road:

1. The existing beach access road, south of Honda Canyon would be for accessing the lower bridge elevation.
2. A new access road, south of Honda Canyon would be for accessing the south abutment.
3. An existing access area at Honda Station, north of Honda Canyon would be for accessing the north abutment and new Pier 2 access road.

Additional vehicle traffic to and from VSFB paved and unpaved roads would be to transport construction workers, deliver equipment and materials, and remove construction waste. There would be an estimated average of 17 worker trips and 8 vendor trips per day from the City of Lompoc (approximately 16 miles travel distance on average).

Figure 3-7. Vehicle Access Map and Gates



Legend

- Honda Bridge Replacement Location
- Action Area
- VSFB Boundary
- Railroad Track
- Main Access Routes
- Action Area Routes
- No Vehicle Access
- Fire Hydrant
- Milepost

Gates

- Primary Gate
- Secondary Gate
- Inspection Gate
- Additional VSFB Gate

N

0 1 2 Miles

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.56723°W 34.63745°N
Santa Barbara County, California

Map Updated: April 20, 2023 10:41 AM by SAF

3.10 Utilities

Fiber optic lines are currently located along UPRR property within the Proposed Action Area. At the crossing of Honda Creek, the fiber optic cables are enclosed within conduit that runs beneath Honda Bridge. North and south of the bridge, fiber optic cables align the east and west sides of UPRR property at variable distances from the centerline of the tracks.

Commercial power is provided by Pacific Gas and Electric (PG&E) as the primary source of energy to nearby SLD 30 facilities and Space Launch Complexes (SLC). South Vandenberg Power Plant provides redundant power to the nearby SLCs during launches and launch preparations (Edwards 2023). Electric energy is transmitted through an above-ground (wooden) power pole alignment located east of and adjacent to the Action Area, east of Buildings 541 and 533.

A buried nitrogen gas pipeline parallels Coast Road on SLD 30 property within the road shoulder near the Action Area. The alignment travels to/from the AirGas facility north to service SLC-4 and SLC- 3. The nitrogen gas pipeline also travels to/from the AirGas facility south to service SLC-6. The AirGas facility is located just south of Building 544 and is not in the Action Area.

No water or sewer utilities are available or routed within the Action Area. However, water availability is accessible from a fire hydrant located five miles north of La Cañada Honda Bridge.

4 ENVIRONMENTAL CONSEQUENCES

This section presents the results of analysis for potential environmental effects of implementing the No Action Alternative and Preferred Alternative - Proposed Action as described in Section 2 above. For each environmental resource, anticipated direct and indirect impacts are considered.

4.1 Air Quality/Greenhouse Gas

The Proposed Action would have a significant air quality impact if it directly or indirectly exposes people to localized air pollutant concentrations that violate federal or state ambient air quality standards, or exceeds caps imposed by federal and state GHG regulations.

4.1.1 No Action

Under the No Action Alternative, the bridge would not be replaced and construction, temporary staging, and fiber optic relocation/replacement would not occur. However, should the existing bridge fail, air quality near the Action Area could be significantly impacted by dust and hazardous pollutants before and during emergency cleanup operations. If rail transport is not available between San Luis Obispo and Santa Barbara due to bridge failure or outage, surface road transport is estimated to add more than 1,000 commercial trucks per week and 7,000 cars per week, equating to about 32,000 vehicle trips per month. This would impact air quality and GHG throughout the region. Alternative rail travel would route trains via Sacramento, through the Central Valley, across the Tehachapi Range to Barstow, to connect to Los Angeles.

4.1.2 Preferred Alternative - Proposed Action

Honda Bridge demolition and construction has potential to impact air quality. Emissions are estimated for each of the above operations using established emission factors and conservative operational assumptions. Information contained within this section is taken from Ambient Consulting's Air Quality and Greenhouse Gas Technical Memorandum (Appendix S). Construction emissions were calculated assuming an overall construction period estimated at 20 months, with a 14-stage construction schedule, start/end dates, duration, construction equipment, worker trips and distance, vendor trips and distances, and haul trips and distances. Given the project's location within SBC, methodology from SBCAPCD (2022a) was used to estimate criteria pollutant emissions and air quality impacts. Short-term emissions associated with the construction of the proposed project were calculated using the U.S. Air Force's Air Conformity Applicability Model (ACAM), version 5.0.17b, computer program.

4.1.2.1 Air Quality

Construction-generated emissions are of temporary duration, lasting only during construction activities. Construction of the proposed project would result in the temporary generation of emissions associated with bridge replacement, motor vehicle exhaust from construction equipment and worker trips, as well as the movement of construction equipment on unpaved surfaces. Short-term construction emissions would result in increased emissions of ozone-precursor pollutants (reactive organic gases [ROG] and NO_x) and emissions of particulate matter (PM).

Estimated maximum annual emissions associated with construction of the proposed project are presented in Table 4-1. The maximum annual construction-generated emissions would total approximately 0.84 tons/year of VOC and 4.86 tons/year of NO_x. Maximum annual construction

emissions would not exceed the federal major source threshold of 100-250 tons/year. In addition, SBC is currently designated attainment/unclassified for all federal NAAQS. Therefore, the project is not located in a federal non-attainment or maintenance area for NAAQS and the federal air quality general conformity requirements would not apply to this project.

TABLE 4-1. CONSTRUCTION EMISSIONS

Construction Year	Emissions (tons per year)								
	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	Pb	NH_3	Co_{2e}
2024	0.84	4.86	5.85	0.01	0.35	0.20	0.00	0.01	1,421.5
2025	0.57	3.07	4.31	0.01	0.13	0.12	0.00	<0.01	1,004.5
Threshold	100	100	250	250	250	250	25	250	-
Exceeds Insignificance Criteria (Yes/No)?	No	No	No	No	No	No	No	No	-

Refer to Appendix S for modeling assumptions and results.
VOC=Volatile Organic Compounds; NOX=Oxides of Nitrogen; CO=Carbon Monoxide; SO2=Sulfur Dioxide; PM10=Particulate Matter <10 Microns; PM2.5=Particulate Matter <2.5 Microns; Pb=Lead; NH3= Ammonia
Emissions were quantified using the ACAM computer program in accordance with U.S. Air Force guidance.

The project would be required to comply with SBCAPCD's Rule 345 for the control of fugitive dust associated with construction and demolition activities. In addition, implementation of dust and equipment emissions control measures described in Section 2.3.9.1 ensures that there is an *insignificant impact* on air quality.

4.1.2.2 Greenhouse Gases

Estimated increases in GHG emissions associated with the short-term construction of the proposed project are summarized in Table 4-2. Based on the modeling conducted, construction-related GHG emissions would total approximately 2,426 $MTCO_2e$. Construction-generated emissions would occur over a short-term period of approximately 20 months. EPMs that include dust and emission control measures described in Section 2.3.9.1 ensures that *no significant impact* to GHG emissions would occur.

TABLE 4-2. CONSTRUCTION GHG EMISSIONS

Construction Year	GHG Emissions $MTCO_2e$/ Year
2024	1,421.5
2025	1,004.5
Construction Total	2,426.0

MTCO2e = Metric tons of carbon dioxide equivalent
Refer to Appendix S for modeling assumptions and results.

4.2 Biological Resources

Significant biological resource impacts would occur if implementation of the Proposed Action would directly or indirectly result in permanent loss of sensitive vegetation communities, including wetlands and non-wetland waters of the U.S. and State, rare, threatened, or endangered plant or animal taxa, or alteration of regionally or locally important wildlife corridors.

Potential impacts to threatened and endangered federal species were addressed during consultation with the USFWS under Section 7 of the ESA (Section 1.3). A BO was issued on September 23, 2022 (Appendix C). All Avoidance and Minimization Measures identified in the BO and EPMs listed in Section 2.3.9 shall be implemented as part of the Proposed Action.

4.2.1 No Action

Under the No Action Alternative, UPRR would not replace the Honda Bridge and disturbances to plants and wildlife would not occur. The bridge would continue deteriorating and maintenance would eventually fail to keep the structure safe for use. Should the bridge fail, direct impacts to biological resources would be potentially significant to special status plants, animals, and their habitats.

4.2.2 Preferred Alternative - Proposed Action

The following potential impacts to biological resources and jurisdictional wetlands and waters could occur because of the Proposed Action:

- Temporary decline of water quality in Honda Creek due to erosion, sedimentation, or contamination from project-related activities.
- Temporary loss of habitat, including wetlands and waters, due to mowing or grading for laydowns, work areas, temporary causeways, and road improvements.
- Limited permanent loss of habitat, including wetlands and waters, due to installation of new bridge infrastructure.
- Loss of animals within the Proposed Action Area due to vehicle strikes, mowing, grading, soil-disturbing activities, erosion, sedimentation, or water contamination.
- Disturbance or abandonment of animal breeding, roosting, or foraging activities or habitats due to project-related noise, temporary night lighting, or increased human activity.

4.2.2.1 Vegetation Resources

Habitat types identified in the Action Area are acacia, central coast arroyo willow riparian forest and scrub, central coastal scrub, central coastal scrub/iceplant, coastal bluff, coastal brackish/salt marsh, coastal strand, developed land, disturbed/cleared land, foredune, iceplant, and seasonal open water (Figure 4-1). Project activities would temporarily impact up to 4.82 acres of native vegetation for up to two years. Up to 0.02-acre of open water, 0.01-acre of coastal brackish/salt marsh, 0.02-acre of central coastal scrub, <0.01-acre of coastal bluff, and 0.02-acre of iceplant are expected to be permanently impacted by the project. Estimated permanent and temporary impact acreages, locations, and rarity status of each vegetation type are summarized in Table 4-3. Sensitive vegetation communities include central coast arroyo willow riparian and scrub (*Salix lasiolepis* association; CNPS 2022a) and coastal brackish/salt marsh (*Frankenia salina* alliance, approaching *Distichlis spicata*; CNPS 2022a).

TABLE 4-3. HABITAT IMPACTS WITHIN THE PROPOSED ACTION AREA

Habitat status	Vegetation Type (WR 2009)	Temporary (acres)	Permanent (acres)	Rarity Ranking(s)
Densely vegetated; mostly native plant taxa	Central Coast Arroyo Willow Riparian Forest and Scrub	0.55	0	Sensitive (CDFW) ESHA (CCC)
	Central Coastal Scrub	1.58	< 0.02	None
	Central Coastal Scrub/Iceplant	0.70	0	None
	Coastal Bluff	0.29	0	ESHA (CCC)
	Coastal Brackish/Salt Marsh	0.78	0.01	Sensitive (CDFW) ESHA (CCC)
Subtotal:		**3.90**	**< 0.03**	
Sparsely vegetated; mix of native and nonnative plant taxa	Coastal Strand	0.20	0	ESHA (CCC)
	Foredune	0.07	0	ESHA (CCC)
	Seasonal Open Water	0.65	0.02	ESHA (CCC)
Subtotal:		**0.92**	**0.02**	
Minimally vegetated or dominated by nonnative plant taxa	Acacia	2.12	0	None
	Developed Land	4.20	0	None
	Disturbed/Cleared Land	5.90	0	None
	Disturbed/Iceplant	0.30	0	None
	Iceplant	1.60	< 0.03	None
	Nonnative Annuals and *Oxalis pes-caprae*	1.07	0	None
Subtotal:		**15.19**	**< 0.03**	

Union Pacific Railroad property along the railroad and within Honda Station and Surf Station are historically disturbed and habitat within the ROW has been manipulated for over 100 years. These areas would continue to be maintained and disturbed regularly; therefore, a distinction is made between vegetation impacts to previously disturbed and managed habitats and more intact habitats elsewhere on UPRR or VSFB property.

After project completion, site restoration would proceed according to an approved Restoration Plan. Riparian habitat, waters, and wetlands would be restored and revegetated. All upland habitats would be re-contoured and restored. Restoration areas would be monitored for 5 years to ensure performance standards are met. Implementation of the Restoration Plan, all measures described in the CCC Consistency Certification, and described in Section 2.3.9 ensures that there are *no significant impacts* to sensitive vegetation resources.

4.2.2.2 Wetlands and Waters of the U.S.

Approximately 0.91-acre of federal and state wetland, 0.19-acre of state wetland, 0.23-acre of riparian habitat that may be state jurisdictional, and 0.65-acre of federal and State non-wetland waters may be subject to temporary impacts lasting up to two years. New bridge footings would result in 0.03-acre of permanent impacts to federal and State wetlands and waters.

Federal and State wetlands within the Proposed Action Area consist of 0.33-acre of central coast arroyo willow riparian forest and scrub and 0.59-acre of coastal brackish/salt marsh. State wetland includes 0.19- acre of floodplain-brackish/salt marsh, and 0.23-acre of central coast arroyo willow riparian forest and scrub adjacent to Honda Creek that may fall under State jurisdiction. Federal and State non-wetland waters within the Proposed Action area consists of 0.67-acre of seasonal open water. There would be no impact to intertidal or subtidal marine habitats.

As analyzed in Section 2.2 and summarized in Table 2-1, the Proposed Action is limited to disturbances and losses to wetlands, waters, and floodplains to the minimum necessary to complete the Proposed Action, and no less environmentally damaging feasible alternative is available to lessen wetland, waters, and floodplain impacts. Among those alternatives analyzed are the long span and offline alignment. Neither of these alternatives met Selection Criteria 3 (minimize impacts). The long span alternative designs were evaluated to avoid or minimize the number of bridge supports within the wetland, waters, and floodplain, but had greater permanent impacts to wetland, waters, and floodplains or to cultural resources due to larger footings. In addition, the offline alignment alternative was analyzed, but had greater temporary impacts to wetland, waters, floodplains, and greater permanent impacts to upland habitats. Therefore, there is no practicable alternative for relocating the Proposed Action outside the wetland and waters.

Proposed Action impacts to federal and State waters, wetland and riparian habitat (up to 1.98 acres temporary and 0.03-acre permanent) would be restored according to the Restoration Plan and measures outlined in Section 2.3.9.2. Therefore, project implementation would have *no significant impact* to wetlands and waters of the U.S/State.

4.2.2.3 Botanical Resources

One federally listed threatened plant and 12 additional special status plant taxa are known to occur within the Action Area. One species has a high potential to occur, and eight species have a low potential to occur.

Beach Layia. Beach layia may be directly affected by ground disturbing construction activities, vehicular traffic, and foot traffic. The species was not observed within the Action Area during surveys in 2018 or 2021 but has historically been present at two occurrences and is known to occur within the Action Area. Neither of the known occurrences would be directly impacted by the project because both would be clearly marked for avoidance during the project. To further minimize potential impacts, potential beach layia habitat within and adjacent to the Action Area (including central dune scrub, central dune scrub/iceplant, and iceplant north of Honda Canyon) would be surveyed annually by a qualified botanist. Surveys would occur during the appropriate season and prior to any ground disturbing activities and beach layia would be mapped and fenced for avoidance for the duration of the project. If beach layia habitat is impacted or if beach layia is detected within the project footprint and avoidance is not possible, then soil would be salvaged and replaced post-construction and weed management would be implemented. All impacted

iceplant outside of known beach layia habitat north of Honda Bridge would be restored with native seed mixes upon project completion and nonnative weed control implemented.

It was determined that the Proposed Action *May Affect, is Likely to Adversely Affect* beach layia. 30 CES/CEI received a USFWS BO on September 23, 2022 (Appendix C). Although the Proposed Action may result in adverse effects to beach layia, all Avoidance and Minimization Measures from the BO are incorporated into Section 2.3.9.2 of the Proposed Action to avoid or minimize the potential for adverse effects to the maximum extent practicable, and effects on beach layia would not be significant.

Non-Federally Listed Plant Species. Mowing, grading, earth moving, vehicle and equipment movement, and other construction activities could result in direct impacts to State listed special status plant taxa that either occur or have the potential to occur within the Action Area. These species may also be impacted by habitat degradation due to presence of invasive weeds following disturbance. As identified in Section 2.3.9.2, potential loss and habitat degradation can be avoided by restoring or revegetating disturbed habitat within the Action Area according to the Restoration Plan (Appendix L). In summary, these avoidance and minimization measures described as part of the Proposed Action ensures that there are *no significant impacts* to special status botanical resources.

4.2.2.4 Wildlife Resources

Habitat loss within the Action Area during project activities may result in temporary impacts to wildlife foraging and breeding activities and/or movement through the riparian corridor. Wildlife may be disturbed by construction activities due to increased noise, human activity, and temporary night lighting.

Implementation of the Proposed Action would result in short-term increased noise levels from construction and demolition activities and increased human activity in and around the Action Area, especially at the Honda Bridge site. EPM measures described in Section 2.3.9.2 as part of the Proposed Action would reduce these impacts and ensures that there are *no significant impacts* to special status wildlife resources summarized below.

Special Status Amphibian. The CA red-legged frog (CRLF) is known to occur in Honda Creek and may be affected by project activities within and adjacent to the creek. Impacts may occur due to vehicle strikes, mowing, construction activities, or during capture and relocation. Short-term noise generated during construction operations may disturb CRLF near the creek. CRLF may also be affected by sedimentation, contamination, or temporary night lighting during bridge changeout. During construction, sediment may enter the waterway and adversely affect egg masses and juvenile or adult CRLF. Contamination of the waterway may occur from vehicular leaks or improper equipment or vehicle maintenance. Night lighting during the two-week bridge changeout may also affect CRLF and alter their foraging behavior or make them more visible and vulnerable to predators. EPMs described in Section 2.3.9.2 are for the installation of ERTEC© wildlife exclusion fencing to prevent CRLF from entering the work area, presence of a USFWS-approved biological monitor to capture and relocate frogs, erosion controls, and the maintenance of a trash-free work environment to avoid attraction of potential predators.

It was determined that the Proposed Action *May Affect, is Likely to Adversely Affect* CRLF. 30 CES/CEI received a USFWS BO on September 23, 2022 (Appendix C). Although the Proposed Action may result in adverse effects to CRLF these impacts would be temporary, and all Avoidance

and Minimization Measures from the BO are incorporated into Section 2.3.9.2 of the Proposed Action. to avoid or minimize the potential for adverse effects to the maximum extent practicable, and effects on CRLF would not be significant.

Special Status Reptiles and Arguello salamander. Special status reptiles and one amphibian of conservation concern may be affected by project activities including the northern CA legless lizard, two-striped garter snake, southwestern pond turtle, and Arguello salamander. Impacts to these four species may occur due to vehicle strikes, mowing, grading activities, construction ground disturbance, or capture and relocation. These four species may also be affected by temporary loss of habitat. During construction, sediment may enter the waterway and adversely affect the health of the two-striped garter snake and southwestern pond turtle. Contamination of the waterway may occur from vehicular leaks, improper equipment or vehicle maintenance, or spills. Impacts to aquatic special status reptile species would be minimized by following best practices to maintain water quality and prevent contamination of Honda Creek (Section 2.3.9), the installation of ERTEC© wildlife exclusion fencing along Honda Creek and other parts of the Action Area, and the maintenance of a trash-free work environment to minimize attraction of potential predators. Impacts to terrestrial special status reptiles would be minimized by conducting preconstruction surveys within work areas prior to any mowing or ground disturbing construction activities. If any special status reptiles are found within the Action Area, they may be captured and relocated to an appropriate offsite location only by qualified biologists. Through the implementation of these EPMs that are part of the Proposed Action, the project is not expected to significantly impact special status reptiles.

Special Status Birds. Special status bird taxa that may be found breeding near or within the Action Area include the American peregrine falcon and Allen's hummingbird. An additional six special status bird taxa may occur during migration or winter and would not be significantly impacted by the project. Vegetation removal may result in temporary loss of potential foraging and nesting habitat for breeding and migrating birds. Mowing and vegetation clearance would occur prior to nesting season; however, if vegetation disturbance must occur during nesting bird season, nesting bird surveys shall be conducted, and active bird nests protected with appropriate buffers. Nesting birds adjacent to the Action Area may be disturbed by short-term noise, temporary night lighting, or other human activity, which may potentially lead to nest abandonment. Measures listed in Section 2.3.9.2 include preconstruction surveys and methods to reduce noise impacts to nesting birds. The project is not expected to significantly impact special status bird taxa.

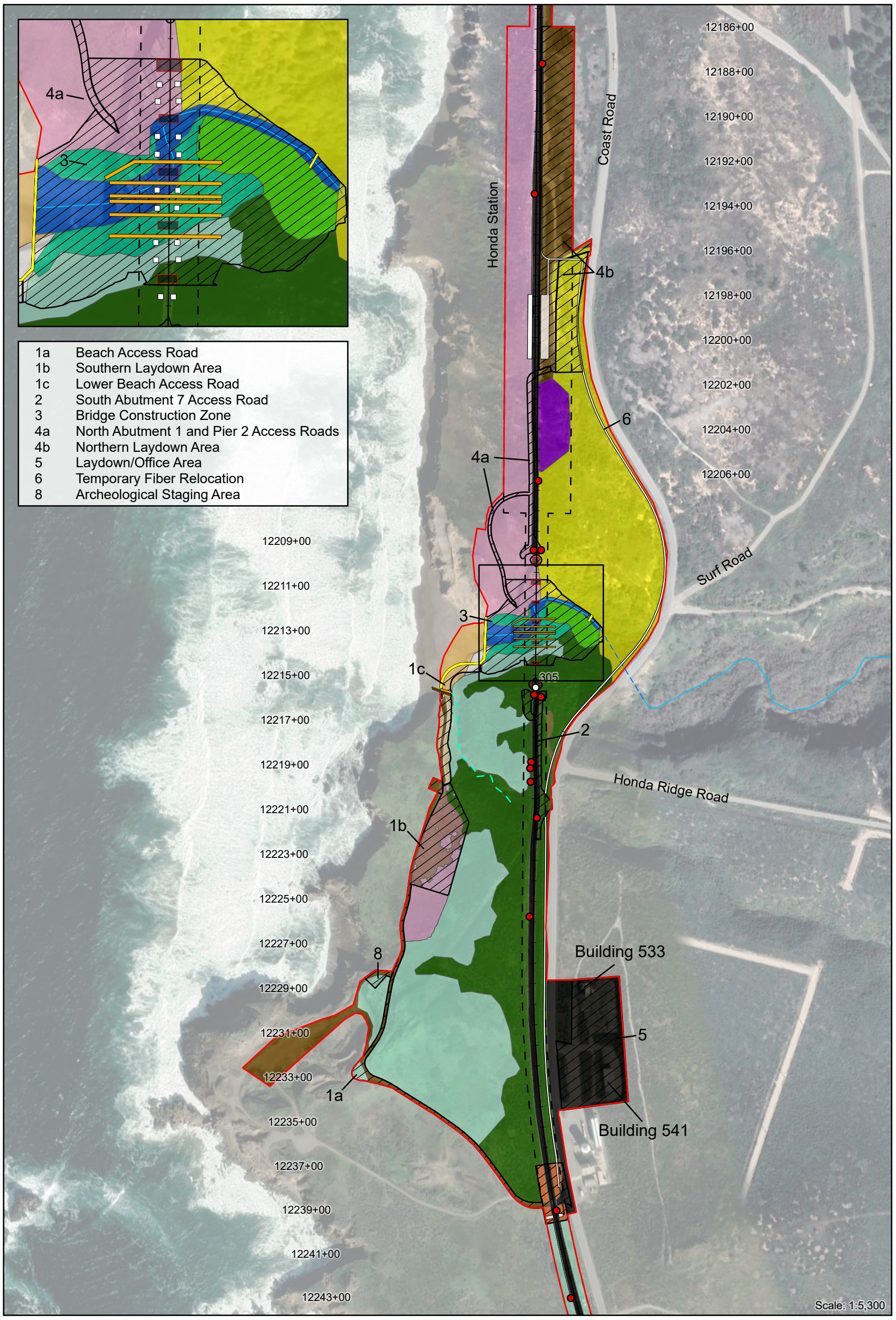
Special Status Mammals. Three bat species (pallid bat, Townsend's big-eared bat, and Yuma myotis) may use Honda Bridge as a temporary night roost; however, the open deck structure does not offer suitable shelter from weather and is subjected to high levels of noise and disturbance from crossing trains. Two bat species (hoary bat and western red bat) potentially roost in riparian vegetation in Honda Creek. All five bat species may forage or roost along the Honda Creek riparian corridor within the Action Area. Vegetation disturbance may result in temporary loss of potential foraging and roosting habitat; however, due to the abundance of suitable riparian habitat upstream of Coast Road, this impact would be less than significant. Vegetation removal would occur outside the breeding season and would not impact maternity roosts. Bats may be disturbed during mowing and/or bridge removal, though direct physical harm to individuals is unlikely as bats flush readily due to noise or vibration. Bats may be at increased risk of predation if they flush during the day, but the number of individuals potentially affected is expected to be small based on the resources

and likelihood of roosting within the Action Area and would not significantly impact bat populations.

Wildlife Corridor. Wildlife movement through the Honda Creek riparian corridor would be temporarily impacted due to alteration of riparian habitat, causeway installation, and the installation of exclusion fencing around the Action Area. Impacts to wildlife may include decreased fitness, injury, or death of individuals if they are forced out of the riparian corridor into less suitable habitat or are unable to travel locally around the Action Area. These temporary impacts would be offset in the long term by habitat restoration of the riparian corridor within the Action Area.

Tidewater Gobies. Tidewater gobies are not currently present within Honda Creek and have not been detected there since 2001. Minimization measures would be in place to limit adverse effects to aquatic habitat in the event of tidewater goby re-colonization. Consistent with the BO, it was determined that the Proposed Action is *Not Likely to Adversely Affect* tidewater goby based on effects being Discountable (Appendix C).

Figure 4-1. Vegetation Type Impacts



4.3 Water Resources

Significant water resource impacts would occur if implementation of the Proposed Action directly or indirectly result in increased rates of erosion, reduced surface water quality in creeks, rivers, streams, or the ocean, or reduced surface or groundwater quality or quantity.

4.3.1 No Action

Under the No Action Alternative, Honda Bridge would not be replaced; therefore, no impacts to water resources, including floodplains, would occur. However, if the existing Honda Bridge were to fail, a potentially significant impact on surface waters would occur from debris, bank erosion, and emergency bridge replacement that would alter Honda Creek hydrology and its floodplain.

4.3.2 Preferred Alternative - Proposed Action

4.3.2.1 Surface Water and Floodplains

The Proposed Action would occur within Honda Creek and its associated floodplain. As analyzed in Section 2.2 and summarized in Table 2-1, the Proposed Action is limited to disturbances and losses to wetlands, waters, and floodplains to the minimum necessary to complete the Proposed Action, and no less environmentally damaging feasible alternative is available to lessen wetland, waters, and floodplain impacts. The long span alternative designs were evaluated to avoid or minimize the number of bridge supports within the wetland, waters, and floodplain, but had greater permanent impacts to wetland, waters, and floodplains or to cultural resources due to larger footings. In addition, the offline alignment alternative was analyzed, but had greater temporary impacts to wetland, waters, floodplains, and greater permanent impacts to upland habitats. Therefore, there is no practicable alternative for relocating the Proposed Action outside the wetland and waters and the new bridge must cross the creek at this location and cannot be realigned or designed in a manner that would completely span the creek outside the floodplain. In addition, the Proposed Action has a near zero influence on the base flood elevation for the 100-year and 500-year floodplain inundation limits. Figure 3-6 provides a map of the 100-year and 500-year floodplain. The extent of the 100-year floodplain inundation limit is very close to the same extent for the 500-year floodplain inundation limit within Honda Canyon because of the steep canyon side slopes.

All design choices required by EO 11988, Section 3 would be incorporated into the project. The Proposed Action would replace the existing bridge by removing the existing bridge pedestals at Bents 6, 7, 8, 9, and 10 and constructing three permanent bridge footings (0.03-acre) within Honda Creek and its floodplain. The Proposed Action would satisfy Selection Criteria 2 by avoiding and minimizing impacts to wetland, waters, and floodplain to the maximum extent practicable. Due to the relatively small net difference in permanent impact between the new bridge footings and the removal of the existing bridge footings, there would be *no significant impact* to the 100-year and 500-year floodplain.

Construction activities would result in vegetation removal and temporary soil disturbance in the floodplain. Based on models from the Honda Creek 2D Hydraulic Modeling Analysis for Temporary Construction Conditions (Appendix P) overtopping and high-water velocities at the temporary causeway fill would occur during events that exceed a 2-year event. To comply with regulatory frameworks, erosion protection measures would be in-place to avoid high velocities over the top/downslope/upstream face of the temporary causeway fill. High velocities were also

observed in the models at the outlets of the temporary 72-inch diameter CMPs indicating the need for adequate erosion protection measures. In addition, overtopping would occur at the sheet pile stormwater protection for events that exceed a 5- year event; therefore, adequate erosion protection measures are also recommended at this location.

A SWPPP has been drafted for the entire Action Area and would be finalized before project implementation. The SWPPP would require implementation of BMPs to reduce or prevent pollutants in stormwater and non-stormwater discharges associated with construction activities. Sediment and erosion control measures would be implemented. Measures to minimize direct impacts to Honda Creek include daily equipment maintenance and monitoring of the entire project area by qualified persons (trained employees as well as qualified biologists) during construction. Implementation of these measures, along with the erosion protection measures and standard BMPs described in Section 2.3.9 ensures that there are *no significant impacts* to surface water and floodplains.

4.3.2.2 Groundwater

VSFB encompasses portions of two major drainage basins, San Antonio Creek and the Santa Ynez River, and portions of many smaller drainage basins, including Honda Creek. Aquifers capable of yielding large quantities of water usable for water supply are generally restricted to the deeper portions of the San Antonio and Santa Ynez drainages (USAF 2015). No groundwater extraction currently occurs in the Honda Creek basin.

Excavations below the water table would be necessary for bridge footing replacement and subsurface water would be encountered. Dewatering water discharge would require water quality monitoring and reporting per the Construction General Permit. This includes visual monitoring and sampling and analysis for pH and turbidity.

The SLD 30 South Base water system uses San Antonio Creek and Barka Slough groundwater reserves and uses surface water sourced from the State's Central Coast Water Authority. A direct water source is dependent on availability and/or other operating conditions. SLD 30 switches between use of San Antonio groundwater reserves and State Water Project dependent on availability of State Water. Currently SLD 30 is using allocated State Water sourced from surface water. The Proposed Action would use the SLD 30 water system for filling water trucks used for dust control during construction. Dust control measures would temporarily use water during dry periods and would have *no significant impact* to San Antonio Creek groundwater reserves.

4.4 Cultural Resources

Significant impacts to cultural resources would occur if the Proposed Action diminished the values or characteristics that qualify the resource for listing on the NRHP, or if the Proposed Action substantially alters the natural environment or alters access to it in such a way that traditional cultural or religious activities are restricted. The Proposed Action would comply with all relevant federal authorities governing cultural resources. Archaeological and Native American monitoring would be required during project related ground disturbing activities within or adjacent to known archaeological sites, regardless of a site's NRHP eligibility.

4.4.1 No Action

Under the No Action Alternative, the La Cañada Honda Bridge would not be replaced. Thus, cultural resources would not be affected.

4.4.2 Preferred Alternative - Proposed Action

If previously undocumented cultural resources are discovered during construction activities, all work within 100 feet of the discovery would be halted and the SLD 30 cultural resources manager would be notified. Following assessment of the extent and significance of the discovery by a qualified archaeologist, recommendations for appropriate treatment of the discovery would be developed and consultation would continue with the SHPO and the Santa Ynez Band of Chumash Indians. Work within 100 feet of the discovery would resume following agreement between SLD 30, the SHPO, and the Tribe and then completion of any associated treatments.

The following discussion of environmental consequences is based on the DAF's Section 106 compliance documentation that was submitted to the California SHPO and the Santa Ynez Band of Chumash Indians, *Identification of Historic Properties and Finding of Adverse Effect, La Cañada Honda Bridge Replacement* (Ryan and McCormick 2022) and the associated Memorandum of Agreement. The APE includes 17 cultural resources summarized in the following sub-sections. Six of these (CA-SBA-212H, CA-SBA-1145H, CA-SBA-2920H, CA-SBA-4224, CA-SBA-3804, and P-42-041388) have been determined ineligible for the NRHP. Eleven have been determined eligible for the NRHP (CA-SBA-212, CA-SBA-530, CA-SBA-534, CA-SBA-539, CA-SBA-669, CA-SBA-670, CA-SBA-677, CA-SBA-678, CA-SBA-682, CA-SBA-1129, and CA-SBA-1145). The DAF determined that the Proposed Action would have no adverse effects on 10 of the 11 historic properties within the APE (Table 4-4). One historic property, CA-SBA-530, would be adversely affected. The SHPO concurred with this finding on November 8, 2022 (Appendix D). A Historic Properties Treatment Plan (HPTP) was prepared to describe how adverse effects to CA-SBA-530 would be resolved. A MOA was developed and signed between the SHPO, SLD 30, and the Tribe (Appendix E).

TABLE 4-4. SUMMARY OF ASSESSMENT OF EFFECTS TO HISTORIC PROPERTIES

Resource	NRHP Eligibility Status/ Recommendations[a]	Assessment of Effects
CA-SBA-212	Determined eligible (2S2)	No adverse effect with HPPM 1
CA-SBA-530	Determined eligible (2S2)	Adverse Effect with HPPM 7
CA-SBA-534	Determined eligible (2S2)	No adverse effect
CA-SBA-539	Determined eligible (2S2)	No adverse effect with HPPM 2 and HPPM 3
CA-SBA-669	Determined eligible (2S2)	No adverse effect with HPPM 6
CA-SBA-670	Determined eligible (2S2)	No adverse effect with HPPM 4 and 5
CA-SBA-677	Determined eligible (2S2)	No adverse effect
CA-SBA-678	Determined eligible (2S2)	No adverse effect
CA-SBA-682	Determined eligible (2S2)	No adverse effect
CA-SBA-1129	Determined eligible (2S2)	No adverse effect
CA-SBA-1145	Determined eligible (2S2)	No adverse effect

a. Alphanumeric codes were adapted from the California Office of Historic Preservation (2004): 2S2 = previously determined individually eligible for the NRHP in consultation with the SHPO

4.4.2.1 CA-SBA-212

Project activities within NRHP-eligible CA-SBA-212 include improvements to the Upper Beach Access Road and subsequent movement of heavy equipment along the road, plus creating a borrow pit that also would be used as a staging area. The Upper Beach Access Road is an existing 10- to 12-foot-wide dirt road that would be widened at two turning points. The southern laydown area would be established along the inland side of the northern end of the road within the site (Figure 2-1). A maximum of 3 feet of road grading would occur within the northern portion of the site. The road has been in use for more than 20 years and has been previously improved with fill. However, archaeological deposits within the shovel test pits excavated outside the road margins appeared intact, with enough density and diversity of artifacts to address research questions. At the southern laydown area, shovel test pits and auger excavations found an extremely low density and diversity of material down to the limits of grading. The south laydown area does not contain a density or diversity of material that would allow researchers to address research questions. Finally, two shovel test pits excavated at the north site boundary, where three feet of grading would occur, also yielded a density and diversity of material insufficient to address research topics.

The Proposed Action would result in no adverse effect to CA-SBA-212 by adopting a strategy of avoidance as described in *Historic Property Protection Measure 1*, which includes:

a. prohibiting grading along the Upper Beach Access Road and limiting vegetation removal to mowing and/or hand-removal;

b. improving the Upper Beach Access Road by placing a 12-foot-wide layer of geo-textile fabric along the entire length of the road as it runs through CA-SBA-212 and then placing a layer of clean, weed-free, imported fill on top of the fabric to create the desired 12-foot-wide access road;

c. installing signage where the Upper Beach Access Road intersects other roads that directs construction traffic to use only the Upper Beach Access Road and, in other areas, signage that states that areas beyond the road are environmentally sensitive areas;

d. installing exclusionary fencing on both sides of the Upper Beach Access Road as it runs through CA-SBA-212 plus an additional 60 meters (200 feet) south of the site to prevent equipment from leaving the road footprint, plus placing exclusionary fencing around the perimeter of the borrow pit and staging area;

e. upon completion of the bridge replacement project, leaving the improved Upper Beach Access Road in place and removing all exclusionary fencing and signage.

4.4.2.2 CA-SBA-212H

CA-SBA-212H is not a historic property.

4.4.2.3 CA-SBA-530

Project activities within NRHP-eligible CA-SBA-530 would include development of a 20-foot-wide North Abutment Access Road along the west side of the railroad tracks just north of the bridge, ending at a new 30 by 30-foot crane pad, developing the Pier 2 Access Road, and developing the Temporary Causeway Crane Pad.

The North Abutment Crane Pad and most of the North Abutment Access Road would be created by placement of fill. However, several road segments would require grading further into the

cutbank west of the tracks to a depth of four feet. This area contains a density and diversity of archaeological material too low to contribute to our understanding of prehistoric human behavior at the site. In addition, integrity is compromised in much of that area due to previous railroad construction events that bisected the dune landform and has displaced and/or removed the archaeological deposit, leaving only the sparse, remnant deposit found during the current study. As a result, development of the road and crane pad would not adversely affect this area of CA-SBA-530.

Establishment of the Pier 2 Access Road, running from the western edge of the right-of-way and looping back to Pier 2 and then down to the Temporary Causeway at the beach level, would traverse areas with archaeological materials that contribute to CA-SBA-530's eligibility for listing on the NRHP. In this area, the Proposed Action would result in no significant impact to archaeological deposits that contribute to the eligibility of CA-SBA-530 by adopting a strategy of avoidance as described in Historic Property Protection Measure 7 in Section 2.3.9.4, which includes:

a. prohibiting grading along the Pier 2 Access Road and limiting vegetation removal to mowing and/or hand-removal;
b. improving the Pier 2 Access Road by placing a 12-foot-wide layer of geo-textile fabric along the entire length of the road as it runs through CA-SBA-530 and then placing a layer of clean, weed-free, imported fill or gravel on top of the fabric using rubber-tired equipment only to create the desired 12-foot-wide access road;
c. installing signage that states that areas beyond the road are environmentally sensitive areas;
d. installing exclusionary fencing on both sides of the Pier 2 Access Road as it runs through CA-SBA-530 to prevent equipment from leaving the road footprint; and
e. upon completion of the bridge replacement project, removing all imported fill or gravel, starting at Pier 2 and working northwards back to the intersection with the railroad tracks, followed by removing all of the geotextile fabric by hand, followed by removing all exclusionary fencing.

The southern terminus of the Pier 2 Access Road would meet a temporary causeway that would be constructed across the back beach area at the mouth of Honda Canyon, requiring up to 4 feet of fill within CA-SBA-530. The Temporary Causeway Crane Pad that would be established at the north end of the temporary causeway fill would require grading into the south-facing hillslope to a maximum depth of 24 feet. Archaeological test excavations in this area encountered deeply buried archaeological deposits that contribute to the site's eligibility. No prudent and feasible modification to the project design or to project construction methods could be developed to avoid impacts to these archaeological deposits. As such, establishment of the Temporary Causeway Crane Pad would result in adverse effects to CA-SBA-530.

a. To resolve adverse effects to CA-SBA-530 resulting from the establishment of the Temporary Causeway Crane Pad a program of archaeological data recovery excavations would be conducted in coordination with the construction excavations required to construct the crane pad. The data recovery program, which is described in detail in the Historic Properties Treatment Plan (citation and SHPO concurrence info), would be accomplished using the following methods: the bridge construction contractor would drive sheet piles into the ground along the northern boundary of the Temporary Causeway Crane Pad to prevent sand from flowing downslope during subsequent excavation;

b. using data from the archaeological test excavations, the bridge contractor would excavate sand and soil on the south side of the sheet pile wall down to just above the upper limits of the archaeological deposits with guidance from the archaeological project manager and create a level terrace;
c. when the surface is exposed, archaeologists will manually excavate up to three (3) shovel test pits, each up to 90 centimeters deep, to help guide placement of larger data recovery units;
d. archaeologists would then excavate no more than two 1 by 1 meter or the equivalent four 0.5 by 1 meter units to capture a sample of the deposit. This process of careful mechanical soil removal to engineering specifications, followed by exploration and data recovery via no more than two excavation units will be repeated in 3 foot layers until the final engineered depth of 24 feet is reached. All soil will be screened through 1/8-inch mesh;
e. after all data recovery excavation are is complete, archaeological materials would be processed in a laboratory and analyzed, the results would be reported, and the artifacts would be curated.

4.4.2.4 CA-SBA-534

Project elements within NRHP-eligible CA-SBA-534 consist of vehicular traffic along an existing unimproved access route between Coast Road and the UPRR ROW. Vehicles would travel this route for the purposes of inspecting and maintaining underground utilities via the multiple handholes that are interspersed between the bridge and Surf Station. No modifications are proposed to this access route within the boundary of CA-SBA-534.Access Road 4 (Figure 2-2) overlaps the southwestern boundary of the site shovel test pits were excavated in the 1990s with negative results (Woodman et al. 1995). As such, the Proposed Action would result in *no significant impact* on CA-SBA-534.

4.4.2.5 CA-SBA-677

Project elements within NRHP eligible CA-SBA-677 consist of vehicular traffic along an existing unimproved access route within the UPRR ROW for the purposes of inspecting and maintaining underground utilities via the multiple handholes that are interspersed between the bridge and Surf Station. No modifications are proposed to this access route within the boundary of CA-SBA-677. As such, the Proposed Action would result in *no significant impact* on CA-SBA- 677.

4.4.2.6 CA-SBA-678

Project elements within NRHP-eligible CA-SBA-678 consist of vehicular traffic along an existing unimproved access route within the UPRR ROW for the purposes of inspecting and maintaining underground utilities via the multiple handholes that are interspersed between the bridge and Surf Station. No modifications are proposed to this access route within the boundary of CA-SBA-678. As such, the Proposed Action would result in *no significant impact* to CA-SBA- 678.

4.4.2.7 CA-SBA-682

Project elements within NRHP-eligible CA-SBA-682 consist of vehicular traffic along an existing unimproved access route within the UPRR ROW for the purposes of inspecting and maintaining underground utilities via the multiple handholes that are interspersed between the bridge and Surf Station. No modifications are proposed to this access route within the boundary of CA-SBA-682. As such, the Proposed Action would result in *no significant impact* to CA-SBA- 682.

4.4.2.8 CA-SBA-1129

No project elements are within NRHP-eligible CA-SBA-1129; the site is included in the APE because it just overlaps the UPRR ROW near where vehicles would travel along an existing unimproved access route within the UPRR ROW for the purposes of inspecting and maintaining underground utilities via the multiple handholes that are interspersed between the bridge and Surf Station. As such, the Proposed Action would result in *no significant impact* to CA-SBA-1129.

4.4.2.9 CA-SBA-539

An existing dirt road within NRHP-eligible CA-SBA-539 has been historically used by UPRR to access the south abutment from Coast Road. However, dense midden deposits can be observed in the road banks and erosional gullies. In this area, the Proposed Action would result in no adverse effect to archaeological deposits that contribute to the eligibility of CA-SBA-539 by adopting a strategy of avoidance as described in *Historic Property Protection Measure 2*, which includes:

a. prohibiting all future vehicular access to this access road by placing barriers at both ends of this short access road;
b. adding a layer of clean fill on top of the existing access road that is suitable for planting endemic plant species; and
c. hand planting endemic plant species within and hydroseeding the restored area.

Additional project activities at CA-SBA-539 would include construction of a new permanent South Abutment Access Road to access the south abutment plus establishment of a temporary South Abutment East Crane Pad. Also, a short segment of new access road would be established on the west side of the tracks along with a temporary South Abutment West Crane Pad. All improvements would include the use of geo-technical fabric and clean, weed-free, imported fill material or clean gravel. Lastly, the south abutment would be demolished and replaced.

The new South Abutment Access Road would be located along the east side of the railroad ballast and be accessed from Coast Road via a new permanent spur road approximately 150 feet south of the Coast Road–Honda Ridge Road intersection. The new access road would proceed north from the access spur, ending at the South Abutment Eastern Crane Pad. No archaeological material is present within the new spur road between Coast Road and the UPRR ROW because it would be established entirely on fill material. However, test excavations along the proposed road along the east side of the ballast yielded significant deposits in areas that have not been disturbed by previous railroad construction events. No significant archaeological deposits were identified on the west side of the tracks nor in the areas surrounding the south abutment. In this area, the Proposed Action would result in no adverse effect to archaeological deposits that contribute to the eligibility of CA-SBA-539 by adopting a strategy of avoidance as described in Historic Property Protection Measure 3, which includes:

a. limiting development of the new South Abutment Access Route to a width of 20 feet beginning at the base of the gravel rail bed and extending eastward;
b. placing solid barrier along the eastern boundary of the new 20-foot-wide South Abutment Access Road;
c. limiting any vegetation removal needed for placement of the solid barrier to hand clearing; and

d. limiting development of the crane pads and west fork of the South Abutment Access Road to previously disturbed areas and areas that do not include archaeological deposits that contribute to the NRHP eligibility of CA-SBA-539.

Lastly, within CA-SBA-539, fiber-optic conduit would be placed temporarily on the ground surface along the western shoulder of Coast Road. At the turnoff from Coast Road to the new access spur, where test pits were negative for cultural resources and it is entirely fill material associated with construction of Coast Road, the conduit would be buried undergrounded within a larger conduit and covered by a steel plate. Six existing underground utility hand holes within CA-SBA-539 would be day-lighted by removing approximately 5 feet of overburden soils that cover each hand hole. Excavation of pits to install additional hand holes may be necessary between existing hand holes along both sides of the railroad track. All excavation involving access to and creation of new hand holes would be within previously disturbed sediments associated with trenching during the original construction of the existing fiber-optic line. As such, in this area, the Proposed Action would result in *no significant impact* to CA-SBA-539.

4.4.2.10 CA-SBA-669

Project activities at NRHP-eligible CA-SBA-669 would include improving the Lower Beach Access Road along the site's eastern margin and subsequent use by heavy equipment. The existing road would be widened from approximately 12 feet to approximately 35 feet by excavating further into the existing cut bank and using the spoils as fill material to build up the downslope portion of the road. These improvements would be permanent and also entail construction of a 9-foot-tall block wall along a portion of the west side of the road to hold up the vertical cutbank. Based on the results of testing, the area that would be excavated for widening has a very low density of cultural material within disturbed soils. However, just west denser, intact, significant archaeological deposits are present. In this area, the Proposed Action would result in *no significant impact* to archaeological deposits that contribute to the eligibility of CA-SBA-669 by adopting a strategy of avoidance as described in *Historic Property Protection Measure 6*, which includes:

a. limiting the amount of additional excavation into the existing cutbank by creating a vertical cutbank that is supported by a permanent block wall up to 9 feet in height instead of creating a 2:1 slope along the west side of the road;
b. installing exclusionary fencing along the top of the new vertical cutbank and within 60 meters of the boundary of CA-SBA-669 to protect intact, significant archaeological deposits.

4.4.2.11 CA-SBA-670

Project activities at NRHP-eligible CA-SBA-670 would include temporary relocation of the existing fiber-optic line and removal of a stand of invasive acacia trees as part of the Proposed Action's Environmental Restoration Plan.

The fiber-optic line would be rerouted above-ground along the west side of Coast Road for the entire length of the site. Temporary fiber conduit would be placed on the previously disturbed road shoulder no more than 8 feet from the edge of pavement. In some areas, a 6-foot-wide strip along the western shoulder of Coast Road would be mowed, and K-rail or similar barriers would be placed along the road shoulder. All work relating to this project element would occur in previously disturbed areas associated with the road cut created to construct Coast Road. As such, in this area, the Proposed Action would result in *no significant impact* to CA-SBA-670.

The south bank of Honda Canyon hosts a 10-acre stand of invasive acacia trees that nearly overlaps the entirety of CA-SBA-670. The Proposed Action would remove the acacia trees and revegetate the area with endemic plant species. In this area, the Proposed Action would result in *no significant impact* to archaeological deposits that contribute to the eligibility of CA-SBA-670 by adopting a strategy of avoidance as described in *Historic Property Protection Measure 5*, which includes:

a. restricting access to the portions of the acacia restoration area that overlap CA-SBA-670 to foot traffic only and restricting acacia removal techniques to hand cutting only above the ground surface; and
b. revegetating the area by hand-broadcasting seed and/or hydroseeding.

Project activities also would involve vehicular travel along the unimproved dirt access road on the east side of the tracks. Test excavations along the North Abutment Accessway found archaeological deposits at ground-level in the cutbank that forms the eastern boundary of the access road. Analysis revealed that this deposit is a deeply buried component of CA-SBA-670 that has the potential to address research questions. In this area, the Proposed Action would result in *no significant impact* to archaeological deposits that contribute to the eligibility of CA-SBA-670 by adopting a strategy of avoidance as described in *Historic Property Protection Measure 4*, which includes:

a. installing exclusionary fencing or rigid barrier along the base of the eastern cutbank beginning at the south end of the cutbank, extending along the base of the cutbank for the entire length of the western boundary of CA-SBA-670, and extending an additional 60 meters north of the boundary of CA-SBA-670.

4.4.2.12 CA-SBA-1145

Project activities at NRHP-eligible CA-SBA-1145 would include widening the turn from Coast Road to the Upper Beach Access Road. This activity would occur in an area of the site that has been extensively disturbed from construction of Coast Road and the railroad. Survey for the Project confirmed that no artifacts are present on the surface in this area. Road widening would be accomplished by placement of geotextile fabric and approximately 6 to 18 inches of road base fill for the purposes of leveling out very uneven surfaces and transitions between Coast Road and the railroad tracks. No ground disturbance would take place in this area. As such, in this area, the Proposed Action would result in *no significant impact* to CA-SBA-1145.

Project activities also include excavation of two jack-and-bore pits at the south end of the fiber-optic line work area to bring fiber optic lines from the west side of the tracks over to the east side of the tracks. These would be immediately south of the Upper Beach Access Road and would be a maximum of 15-feet-wide by 38-feet-long by 7-feet-deep on the west of railroad tracks and 15-feet-wide by 20-feet-long by 7-feet-deep east of railroad tracks. Effects testing excavations within the jack-and-bore pit footprints included three shovel test pits, two of which included augers into the bottom of the unit. Only two fragments of marine shell were recovered. Given the very low quantity of recovered artifacts and abundant soil disturbance from past construction, this part of the site does not contain data that could address research questions. As such, in this area, the Proposed Action would result in *no significant impact* to CA-SBA-1145.

Lastly, beginning at the bore pit on the east side of the tracks and proceeding northward through CA-SBA-1145 along the east side of the ballast, a fiber-optic line would temporarily be placed in conduit on the ground surface and covered with road base for protection during construction. All

work would be within previously disturbed areas along the UPRR ROW. As such, in this area, the Proposed Action would result in *no significant impact* to CA-SBA-1145.

4.4.2.13 CA-SBA-1145H

CA-SBA-1145H is not a historic property

4.4.2.14 CA-SBA-2920H

CA- SBA- 2920H is not a historic property.

4.4.2.15 CA-SBA-3804

CA-SBA-3804 is not a historic property.

4.4.2.16 CA-SBA-4224

CA-SBA-4224 is not a historic property.

4.4.2.17 P-42-041388 (Honda Bridge)

P-42-041388, the La Cañada Honda Bridge, is not a historic property.

4.5 Earth Resources

Significant earth resource impacts would occur if implementing the Proposed Action would directly or indirectly result in soil erosion or expose people or structures to strong seismic activity or geologic hazards such as ground shaking or soil liquefaction.

4.5.1 No Action

Under the No Action Alternative, the Honda Bridge would not be replaced, and soil disturbance due to project-related activities would not occur. However, Honda Bridge would continue deteriorating and bridge maintenance would eventually fail to keep the structure safe for use. If the bridge collapsed, it could cause potentially significant disturbance to soils and vegetation in Honda Creek which would likely result in increased erosion. Significant soil disturbance would occur during removal of the collapsed bridge. Continued use of the existing bridge could expose people (i.e., train passengers) to risks during or immediately after a large earthquake.

4.5.2 Preferred Alternative - Proposed Action

Implementation of the Proposed Action would involve temporary vegetation removal within the Action Area. Excavating, filling, and grading during site preparation would disturb soil and temporarily increase the potential for surface water runoff and erosion. The Proposed Action would have to meet SWRCB NPDES Construction General Permit requirements including erosion control (Section 2.3.9.3). After project completion, all areas of temporarily exposed soil, including staging areas, temporary causeways, and temporary roads, would be re-vegetated with an appropriate seed mix and sufficiently mulched according to the Restoration Plan (Appendix L;). Implementation of this measure, along with the erosion protection measures and standard BMPs described in Section 2.3.9.3 ensures that there is *no significant impact* from erosion.

The Proposed Action includes development of a new concrete and steel bridge that has been designed to meet UPRR, state, and federal seismic safety standards, and recommendation presented in the HDR Slope Stability Analysis (HDR 2021a) and Geotechnical Design Report

(HDR 2022b). The Proposed Action would have *no significant impact* to geologic hazards, including faulting/seismicity, and soil liquefaction.

4.6 Hazardous Materials, Solid Waste, Human Health & Safety

Potentially significant hazardous materials/solid waste management, human health and safety impacts would occur if implementing the Proposed Action would directly or indirectly result in noncompliance with applicable regulatory requirements, disposal of solid waste quantities that would cause the Proposed Action to fall short of mandated diversion rates, or expose humans/environment to waste or chemical, physical, or biological hazards to levels above those permitted by regulations.

4.6.1 No Action

Under the No Action Alternative, the Honda Bridge would not be replaced and there would be no no human health and safety impacts, no impacts to hazardous materials, and no impacts waste management due to demolition or construction activities. However, if the existing Honda Bridge were to fail, hazardous materials and solid waste such as large amount of ballast, metal, and other materials would likely be released into Honda Creek, requiring emergency retrieval and proper transport and disposal without the benefits of planning. Additionally, human lives could be lost and retrieval of all materials would be unlikely, exposing potentially hazardous debris and HAPs into the human environment. Therefore, if the existing Honda Bridge were to collapse, it would have a significant impact on hazardous materials, waste management, and potentially have a significant impact on human health and safety.

4.6.2 Preferred Alternative - Proposed Action

4.6.2.1 Hazardous Materials and Waste Management

Demolition activities would require removal and disposal of existing steel bridge supports, rail, and wood decking. Construction activities would require the use of diesel fuels, hydraulic fluid, paints, solvents, and other typical chemicals. All hazardous materials and demolition waste would be handled in accordance with applicable federal, State, and local rules and regulations. Union Pacific Railroad would coordinate with SLD 30 regarding transport, storage, management, and use of hazardous materials and waste. All hazardous materials required to operate and maintain construction equipment would be safely used and stored per manufacturers specifications.

Compliance with all applicable federal, State, and local regulations, rules, requirements, and the EPMs described as part of the Proposed Action (Section 2.3.9.5) would ensure implementation of the Proposed Action would have *no significant impact* from the use, transport, generation, or disposal of hazardous materials or waste.

4.6.2.2 Human Health and Safety

4.6.2.2.1 Aeronautical Safety

The FAA aeronautical study revealed that the requested temporary crane structure does not exceed obstruction standards and would not be a hazard to air navigation. UPRR would adhere to certain marked/lighting conditions on the crane structure(s) included in Appendix G and described in Section 2.3.9.5 of the EPMs.

4.6.2.2.2 Worker Safety

Demolition and construction activities associated with the Proposed Action may expose workers to:

- asbestos and lead if released into the environment.
- chemicals such as diesel fuels, hydraulic fluid, and solvents.
- biological and physical hazards, such as poison oak, biting insects, and uneven terrain.

Activities requiring disturbance of asbestos and lead shall be removed by qualified individuals using work practices designated by Title 8 CCR 1529 and 1532.1. In addition, UPRR shall develop and implement a Health and Safety Plan. This plan would detail removal strategies for asbestos and lead, provide a waste characterization analysis for heavy metals, and appoint an experienced safety officer. To prevent chemical, biological, or physical exposure, compliance with federal OSHA regulations would be required. Therefore, the Proposed Action would have *no significant impact* to human health and safety.

4.7 Socioeconomics/Growth Inducing Effects

Significant socioeconomic/growth inducing impacts would occur if implementing the Proposed Action would directly or indirectly alter the local population by exceeding historic growth trends, cause a decrease in jobs or reduce generated income.

4.7.1 No Action

Selection of the No Action Alternative would have a potentially significant impact because it would stop rail traffic circulation across VSFB. Goods and services could not be moved between San Luis Obispo County and SBC via rail. This would impact the efficiency and economic output of the agricultural industry in northwestern SBC, which is the main economic influencer in the area, and result in increases in truck traffic for freight and goods transportation. Amtrak operations that span this part of CA's coastline would cease, with trains terminating at Surf Station, unable to connect with points further south and in Goleta, unable to reach stations further north.

Loss of rail transport along the Santa Barbara Subdivision corridor would also have a significant impact on millions of current and future passengers traveling on this corridor including residents of the 972 state-designated disadvantaged communities and 1,903 low-income communities directly served by LOSSAN (LOSSAN 2022).

4.7.2 Preferred Alternative - Proposed Action

Implementing the Proposed Action would have a short-term beneficial impact on socioeconomic resources through the creation of construction work. Given the supply of construction labor in the region, it is anticipated that construction workers would commute to the work site and not require temporary housing. There would be minor, short-term economic benefits to local convenience businesses from construction workers purchasing meals, fuel, and other commodities near VSFB. The impacts to socioeconomic conditions from temporary employment would be beneficial, but not statistically noticeable.

Additionally, during the changeout periods, rail and freight operations would be routed around VSFB, scheduled to avoid the changeout periods, or routed through alternate railway paths; therefore, there would be no change to the socioeconomic conditions for SLD 30 or SBC. The

Proposed Action would have *no significant impact* on socioeconomic conditions because continued operation of the Honda Bridge is not anticipated to affect growth in the region.

4.8 Land Use

Significant land use impacts would occur if implementing the Proposed Action would directly or indirectly conflict with existing policies of the CCA (Chapter 3 of the Coastal Resources Planning and Management Policies) or resulted in land uses within the Action Area that were incompatible with adjacent land uses.

4.8.1 No Action

Under the No Action Alternative, the proposed replacement of the Honda Bridge would not occur, and no changes to land use would result. However, if the bridge were to collapse, rail traffic would be diverted to other rail routes and result in an interruption of essential rail transportation up and down the CA Coast. A bridge collapse would result in emergency debris removal and a fast-tracked bridge reconstruction project involving intensive construction activities. Such an action could affect the open space areas outside of the Proposed Action Area to accommodate construction staging areas and emergency activities.

4.8.2 Preferred Alternative - Proposed Action

No land conversion or decrease/change in land use would be required for the Proposed Action. As determined in the CCC's concurrence letter and Staff Report (Appendix F), the Proposed Action will be conducted in a manner consistent with the CCMP. Special conditions and measures identified in the EPMs in Section 2.3.9 and Appendix F shall be implemented as part of the Proposed Action. Therefore, the Proposed Action would have *no significant impact* to land use.

4.9 Transportation

Significant transportation impacts would occur if implementing the Proposed Action would directly or indirectly result in degradation of roadways or traffic shifting to roadways incompatible with higher traffic volume.

4.9.1 No Action

Under the No Action Alternative, the proposed replacement of the Honda Bridge would not occur. Therefore, there would be no effect on existing transportation. However, if the bridge were to collapse, it would cause an interruption of essential rail transportation and rail traffic would forcibly divert to other routes. A bridge collapse would result in a large volume of emergency vehicle and equipment traffic on VSFB. Additionally, there would be increased vehicle and equipment traffic on VSFB to deal with debris removal and a fast-tracked bridge reconstruction project. Such an action could significantly impact local transportation routes and the DAF mission. If rail transport is not available between San Luis Obispo and Santa Barbara due to bridge failure or outage, surface road transport would contribute to more vehicle trips per month. This would cause increased traffic congestion on all major highways and roadways in the area. Alternative rail travel would route trains via Sacramento, through the Central Valley, across the Tehachapi Range to Barstow, to connect to Los Angeles, resulting in increased rail traffic and potential schedule conflicts on these routes. Therefore, if the existing Honda Bridge were to collapse, it would likely have a significant impact on transportation.

4.9.2 Preferred Alternative - Proposed Action

No long-term impacts to regional transportation or SLD 30 roads are anticipated. However, temporary short-term construction impacts to SLD 30 roads may be potentially impacted from an estimated average of 17 worker trips and 8 vendor trips per day. Construction traffic would enter and exit VSFB primarily through South Base Gate, which may result in local congestion during peak traffic hours. To reduce traffic impacts during periods of high volume, access through Surf Gate would be utilized for most heavy equipment and material deliveries. Heavy construction vehicles would also remain onsite for the duration of their use. Alleviating traffic by opening Surf Gate is a project design measure included in Section 2.3.9.6 of the EPMs. This and other EPMs included in Section 2.3.9.6 ensures that the Proposed Action would have *no significant impact* to vehicle transportation.

Train schedules would not be impacted from Honda bridge construction except during DPG changeout. During DPG changeout, passenger trains would be routed around VSFB and freight trains would be routed along alternate rail lines or scheduled to avoid the changeout period. Amtrak passenger service out of Surf Station may also be temporarily interrupted during the DPG changeout. Impacts from DPG changeout would be temporary and schedules would be designed to go around or avoid rail service; therefore, the Proposed Action would have *no significant impact* on rail transportation.

4.10 Utilities

Significant utility impacts would occur if implementing the Proposed Action would directly or indirectly result in degradation of utility lines on VSFB.

4.10.1 No Action

Under the No Action Alternative, the proposed replacement of the Honda Bridge would not occur, and there would be no construction impacts to utilities. Since the fiber optic lines extend along Honda Bridge, potentially significant impacts on fiber optic communication systems would occur if the bridge were to fail. Emergency cleanup operations could damage fiber cables buried at various depths within the Proposed Action Area and any direct impact to the SLD 30 mission would add significant costs to launch programs and personnel, resulting in launch delays and delays in getting critical government satellites into orbit. Therefore, if the existing Honda Bridge were to collapse, it would likely have a significant impact on utilities.

4.10.2 Preferred Alternative - Proposed Action

Fiber optic cables that extend along the UPRR property would be temporarily rerouted during bridge construction and replaced along approximately eight miles of rail once bridge construction is complete. Fiber optic cables and access points would be accurately located by fiber optics carriers and mapped by UPRR's contractor to avoid impacts from construction.

An existing nitrogen gas pipeline services the nearby SLCs to/from the adjacent AirGas facility. The underground pipeline parallels Coast Road and is near the Action Area. Although the existing nitrogen gas alignment is buried and well-marked by steel signs, it is a high-pressure gas line that is protected. To avoid potential impacts to SLC operations, excavation near utilities is prohibited 48 hours prior to liftoff. In addition, prior to any excavation work near Coast Road the contractor will provide notice to the 30th Civil Engineer Squadron 1 to 2 days in advance. EPM would include prohibited timeframe and notification in the prescribed Health and Safety Plan (Section 2.3.9.5,

item 8), as well as a measure to include this information on the contractor's plans (EPM Section 2.3.9.5, item 21).

Fiber optic work and temporary cable rerouting are not anticipated to cause interruptions to utility service. Due to the nearby SLC operations, excavation work near utilities is prohibited 48 hours prior to liftoff. Therefore, the Proposed Action would have *no significant impact* to existing utilities.

4.11 Cumulative Impacts

This EA considers cumulative impacts defined in 40 CFR 1508.1(g)(3) of the NEPA Implementing Regulations (CEQ 2022) as the *"…effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time*" A list of past, present, and reasonably foreseeable future actions at south VSFB that could result in cumulative impacts with the implementation of the Proposed Action are shown in. Since the Proposed Action would not impact resources beyond the south VSFB area, Table 4-5 reflects past, present, and reasonably foreseeable actions within the south VSFB area that could impact similar resources as the Proposed Action.

TABLE 4-5. PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

No.	*Actions	Brief Description / Status
1.	Honda Creek Culverts Repair and Corrosion Prevention	Culvert repair of two 13-foot diameter culverts running under Coast Road at Honda Creek crossing. NEPA analysis complete and action is estimated for completion mid-January 2023.
2.	Repair of 3 culverts along Coast Road	EIAP complete, anticipate construction in Fall 2023-Fall 2024
3.	Culvert 10 repair	NEPA underway, anticipate construction in CY 2025 or later
4.	ULA commercial rocket launches and landings at SLC 6 (past action)	Six launches per year.
5.	Falcon 9 and Falcon 9 heavy launch vehicle programs from SLC 4 East	NEPA complete. Actions ongoing
6.	Boost-back and landing of the Falcon 9 first stage at SLC 4 west and offshore	NEPA complete. Actions ongoing
7.	Increased yearly launches at SLC 4 (SpaceX)	Increase from 12 launches to 36 launches per year in 2023.
8.	Construction and operation of new SLC 5 (Phantom)	Construction and operation of a new SLC. NEPA process underway. 48 launches per year
9.	Construction and operation of new SLC 9 (Blue Origin)	Construction and operation a new SLC that would launch 36 rockets per year.

No.	*Actions	Brief Description / Status
10.	Future expansion and operation of existing SLC-6 and increased launch cadence (SpaceX)	Improve infrastructure at SLC-6, add facilities and two new boostback pads, add Falcon Heavy launch capacity at SLC-6 up to 18 times per year. Combined annual launch cadence from SLC-4 and SLC-6 to 100 per year.

*Launch Actions (Nos. 4-10) – Maximum cumulative number of rocket launches from VSFB would be 110 annually.

4.11.1 No Action

Bridge replacement would not occur under the No Action Alternative and no cumulative impacts would be expected on any environmental resources. However, if the bridge were to fail, potentially significant environmental impacts would be expected, necessitating emergency clean-up, demolition, and repair. An emergency bridge reconstruction project would involve fast-track environmental planning and review. Such an action would potentially have more significant impacts on all environmental resources discussed above because there would not be adequate time to incorporate the EMP's and other permit measures. There are unknown impacts based on removal of the bridge structure if it were to collapse.

4.11.2 Preferred Alternative - Proposed Action

Significant cumulative impacts could occur if implementing the Proposed Action directly or indirectly result in environmental degradation from the Proposed Action or interactions with other project impacts in a similar location and at a similar time.

Replacement of Honda Bridge would maintain vital commercial rail transport and continued public travel on Amtrak's Pacific Surfliner and Coast Starlight rail lines. The Proposed Action would benefit SLD 30 operations and commercial launch operations by allowing materials and equipment to be delivered safely by rail. The proposed bridge replacement is necessary to continue providing rail service that has been in operation at this location for approximately 125 years. The replacement bridge would require 5 new concrete bridge footings, 3 of which would have permanent impacts on wetlands and waters. Except for 0.08-acre of permanent impacts from new bridge footings and abutments, impacts to sensitive habitats and resources caused by implementation of the Proposed Action would be temporary of up to 2 years during construction. Impacts to ESHA, wetlands, water quality, plants and wildlife, and cultural resources would be avoided where feasible and minimized where unavoidable, and all temporary impacts to sensitive habitat would be restored. Impacts on SLD 30 resources would be minimized and appropriately timed to avoid direct conflict with SLD 30 operations. The Proposed Action would meet the project's purpose and need by preventing potential bridge failure, impacts associated with failure, and protect significant coastal resources.

Nine actions were identified on the cumulative project list. Summaries of potential cumulative impacts for each resource area are presented in the following subsections. This information considers potential impacts for outside projects based on the best available data.

4.11.2.1 Air Quality

The Proposed Action would not result in significant impacts on air quality. Construction activities associated with the projects identified in Table 4-5 would occur during project construction and during launches. Emissions from the Proposed Action when combined with other concurrent projects would not exceed the air quality significance thresholds in SBC; the actual number of

launches per year is typically below the potential maximum that is used in the emissions calculations. The contribution of the Proposed Action to GHG emissions is extremely small relative to regional emissions and construction activities would occur at different times and different locations on south VSFB. Section 2.3.9.1 includes dust and emission control measures that would be implemented as part of the Proposed Action. Therefore, the incremental contribution of the Proposed Action, when added to the impacts of all other past, present, and reasonably foreseeable future actions, would not result in significant cumulative impacts on air quality or GHG emissions in the ROI or beyond.

4.11.2.2 Biological Resources

The Proposed Action and the other projects that involve noise or ground disturbance identified in Table 4-5 could have temporary and localized effects on biological resources, particularly CRLF. Significant cumulative impacts could occur if other projects, when combined with the Proposed Action, result in significant impacts to wetlands/non-wetland waters, special-status species or their habitats. Those activities (except for the Coast Road Culvert Repair project) would not occur in the same area where the Proposed Action would take place. The Culvert Repair project, located partially within and just south-southeast of the bridge construction zone, was completed prior to initiation of this project. Temporary impacts from construction of the Culvert Repair project overlap along the beach access road, lower beach access, and the southern portion of the temporary causeway. Restoration efforts began March 2023 for Culvert Repair project impacts located outside the Proposed Action. Measures to avoid impacts to CRLF and enhance CRLF habitat is located upstream, east of Coast Road and would not overlap with the Proposed Action. Post-construction restoration efforts for the Culvert Repair project combined with the Proposed Action area would have a net benefit of enhancing CRLF habitat and vegetation resources within the watershed. Section 2.3.9.2 includes measures outlined in the BO and other EPMs that would be implemented as part of the Proposed Action. Therefore, the incremental contribution of the Proposed Action, when added to the impacts of all other past, present, and reasonably foreseeable future actions, would not result in significant cumulative impacts on biological resources in the ROI or beyond, including impacts on ESA listed species.

4.11.2.3 Water Resources

Significant cumulative impacts to water resources could occur if the other projects were to inadequately address water resources during implementation of those actions. However, these projects on VSFB (including the Proposed Action), must implement BMPs and EPMs to control runoff and other adverse effects as necessary, to avoid or minimize potential effects on water quality. Potential impacts during construction activities tend to be localized, temporary, and short-term. All projects listed in Table 4-5 must follow, as applicable, the CWA Sections 401 and 404, the SWPPP for the NPDES Construction General Permit, and Post Construction Storm Water Standards. The Proposed Action is not expected to result in erosion-induced sedimentation or contamination or have significant cumulative impacts on water resources. Section 2.3.9 includes measures that would be implemented as part of the Proposed Action. Therefore, the incremental contribution of the Proposed Action, when added to the impacts of all other past, present, and reasonably foreseeable future actions, would not result in significant cumulative impacts on water resources in the ROI or beyond.

4.11.2.4 Cultural Resources

Actions that cause ground disturbance within archaeological sites or that damage structures over 50 years of age could result in impacts to cultural resources. Significant cumulative impacts could result if major ground disturbance occurs within archaeological sites where multiple previous disturbances have occurred. While cultural resources exist within the footprint of the Proposed Action, impacts to those cultural resources can be mitigated sufficiently to support a determination of no significant impact for the Proposed Action. Section 2.3.9.4 includes site resource specific HPPMs that would be implemented as part of the Proposed Action. Therefore, the incremental contribution of the Proposed Action, when added to the impacts of all other past, present, and reasonably foreseeable future actions, would not result in significant cumulative impacts on cultural resources in the ROI or beyond.

4.11.2.5 Earth Resources

Projects that involve ground disturbance such as construction and related activities could result in soil erosion. Section 2.3.9 includes measures that would be implemented as part of the Proposed Action that would minimize impacts. All projects located on VSFB are subject to seismic ground shaking due to an earthquake on a fault. However, modern construction engineering and safety standards would be implemented, which would avoid potential seismic-related impacts. Therefore, the incremental contribution of the Proposed Action, when added to the impacts of all other past, present, and reasonably foreseeable future actions, would not result in significant cumulative impacts on geology and soil resources in the ROI or beyond.

4.11.2.6 Hazardous Materials, Waste Management, Human Health and Safety

Construction activities associated with the projects identified in Table 4-5 would generate hazardous and/or solid waste and has the potential to expose workers to hazards. However, all projects would follow federal, State, and/or DAF-specific regulations and safety plans. Section 2.3.9.5 includes EPMs that would be implemented as part of the Proposed Action.

Due to construction and related activities, some of the projects listed in Table 4-5 and the Proposed Action would cause an increase in solid waste generation. However, solid waste would be minimized through compliance with the SLD 30 Integrated Solid Waste Management Plan (USAF 2022) and implementation of EPMs under the Proposed Action to avoid or minimize potential impacts on solid waste management. Landfills are expected to be able to process the temporary increases in solid waste.

The Proposed Action and other projects that require construction could slightly increase the short-term risk to human health and safety due to construction personnel performing work onsite. However, safety programs that provide protection to construction workers and limit the exposure of other personnel to construction hazards would be established prior to project implementation and maintained throughout the Proposed Action. All SLD 30 policies on UXO safety for construction work would be followed. Potential impacts would be minimal and located entirely within the immediate construction area. No other projects listed in Table 4-5 would be physically located in the same location as the Proposed Action. Section 2.3.9.5 includes EPMs that would be implemented as part of the Proposed Action to avoid or minimize potential effects on occupational safety and health.

Therefore, the incremental contribution of the Proposed Action, when added to the impacts of all other past, present, and reasonably foreseeable future actions, would not result in significant

cumulative impacts to hazardous materials, waste management, and human health and safety in the ROI or beyond.

4.11.2.7 Socioeconomics

The Proposed Action would not result in significant effects to the socioeconomics of the area surrounding VSFB but would result in minor beneficial impacts to the local economy. Similar to the Proposed Action, the other projects listed in Table 4-5 are not expected to significantly impact the demand for local housing and the need for social services and support facilities due to the relatively small and temporary increases in onsite personnel compared to the regional population. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable future projects, would not result in significant cumulative impacts to socioeconomics.

4.11.2.8 Land Use

The Proposed Action would not result in significant impacts to land use. Because the other projects listed in Table 4-5 are located on VSFB, they would be required to comply with DAF regulations and planning principles. All projects must ensure compatibility with existing land uses and consistency with management plans and would be modified as necessary during the project review process. These projects have been or would be assessed under NEPA and environmental effects would be analyzed and reported. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable projects, would not result in significant cumulative impacts to land use.

California Coastal Commission conditionally concurred with Consistency Certification and determined that the Proposed Action would be consistent with the enforceable policies of the CCMP. Special Conditions and measures are provided in the CCC's Staff Report and a concurrence letter was provided on October 18, 2023 (Appendix F). Because the other projects listed in Table 4-5 are located on VSFB, they must comply with DAF regulations and the CZMA and CCA. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable future projects, would not result in significant cumulative impacts to coastal zone resources.

4.11.2.9 Transportation

Projects identified in Table 4-5 on south VSFB would contribute to increased traffic volumes in the region during construction activities and launch operations due to additional truck shipments and the need for increased onsite personnel. However, roadways on and in the vicinity of VSFB have low average daily traffic and acceptable level of service conditions. Any disruption to these roadways because of the Proposed Action would be relatively small compared to total regional traffic. No long-term increases in traffic would occur under the Proposed Action. Construction activities for the SLC 5 project may occur during the same timeframe and vehicles for the Proposed Action and SLC 5 project may utilize Bear Creek Road when workers are entering and exiting the job site(s). Activities (during launch operations for SLC 4 and SLC 5) associated with the projects identified in Table 4-5 would result in temporary restrictions on roads and access. EPMs in Section 2.3.9 would be implemented as part of the Proposed Action to minimize or avoid effects on transportation. Therefore, the incremental contribution of the Proposed Action, when added to the impacts of all other past, present, and reasonably foreseeable future actions, would not result in significant cumulative impacts to transportation in the ROI or beyond.

4.11.2.10 Utilities

No significant impacts to utilities would result from implementation of the Proposed Action. Activities associated with the projects identified in Table 4-5 would result in temporary construction activity restrictions to ensure vital fiber optic line communications are maintained during launch operations. EPMs in Section 2.3.9 would be implemented as part of the Proposed Action to minimize or avoid effects on utilities (monthly coordination between UPRR and SLD 30 operations). Therefore, the incremental contribution of the Proposed Action, when added to the impacts of all other past, present, and reasonably foreseeable future actions, would not result in significant cumulative impacts to utilities in the ROI or beyond.

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Channel Islands Chapter
P.O. Box 6
Ojai, CA 93024-006
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APPENDIX B. BIOLOGICAL ASSESSMENT (MARCH 2022)

Biological Assessment

for

Union Pacific Railroad Milepost 304.88
La Cañada Honda Bridge Replacement Project
Santa Barbara Subdivision



Honda Creek Bridge, Santa Barbara County, California, January 14, 2018.

Prepared for

Union Pacific Railroad Company
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1400 Douglas Street, Stop 0901
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March 2022

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1 INTRODUCTION

1.1 Purpose

Built in 1898, the existing steel supports at Honda Bridge have corroded and deteriorated, rendering the bridge in need of replacement due to its safety risk. Currently, Honda Bridge supports up to six passenger and two freight service routes daily. To continue rail service to and along southern California coastal cities and towns, Union Pacific Railroad (UPRR) proposes to replace the existing Honda Bridge with a new railroad bridge that would be consistent with Federal Railroad Administration (FRA) standards and current UPRR safety standards (Proposed Action).

This Biological Assessment (BA) provides Vandenberg Space Force Base (VSFB) and the United States Fish and Wildlife Service (USFWS) with information regarding federally listed taxa and/or their critical habitat associated with a 30.2-acre Action Area within a 182-acre survey area (Study Area). Although Honda Bridge is within UPRR property, most bridge replacement activities, including construction, temporary staging, and fiber optic relocation are on VSFB property. Results include a habitat assessment, botanical and wildlife inventory, a discussion of taxa listed under the federal Endangered Species Act (ESA) that occur or could occur in the immediate vicinity, and an analysis of potential impacts to biological resources from the proposed Project. Mitigation recommendations for proposed impacts to biological resources are also discussed. This information is intended to support the Environmental Assessment (EA) through Form 813 issued by VSFB and initiate formal consultation with the USFWS in accordance with Section 7(a)(2) of the ESA.

1.2 Taxa Considered

Research on federally listed plant and wildlife occurrences conducted within the designated search area determined that the Proposed Action could potentially affect three species listed under the Federal ESA. Each is discussed in Section 4.1 and summarized in Table 1 and Table 2.

TABLE 1. PLANT AND WILDLIFE TAXA WITH THE POTENTIAL TO OCCUR

Common Name	Scientific Name	Federal Status
Plants – 1 Species		
Beach Layia	*Layia carnosa*	Endangered
Wildlife - 2 Species		
Tidewater Goby	*Eucyclogobius newberryi*	Endangered
California Red-legged Frog	*Rana draytonii*	Threatened

1.3 Taxa Considered and Dismissed

Gaviota tarplant (*Deinandra increscens* ssp. *villosa*): This subspecies is not known from the Action Area; therefore, the project would have no effect on Gaviota tarplant. The nearest accepted occurrence is on north VSFB near Lion's Head (CNDDB #5, #52). Occurrences near the Project

have been re-assessed and determined to represent grassland tarplant (*Deinandra increscens* ssp. *increscens*) or intergrade populations between grassland tarplant and Gaviota tarplant (Baldwin 2009, 2012).

Western Snowy Plover (*Charadrius nivosus*): This species was considered and dismissed, as Honda Beach is completely inundated by high tides several times each month. There has been no successful breeding of this species at this location following more than 25 years of intense monitoring.

California Condor (*Gymnogyps californianus*): Since the USFWS listed the condor in 1967, there has been only one known condor occurrence on or near VSFB. In March 2017, a juvenile female (#760 / "Voodoo") flew south from her release site near San Simeon along the California Coast Mountain Range, entered south VSFB on March 24 and left north VSFB on April 12, spending much of her time along Honda Canyon on south VSFB and near the Vandenberg Tracking Station on north VSFB. Although condors are not currently present on VSFB, this instance indicates that condors could potentially utilize VSFB in the future for some portion of their life history as their population continues to rebound. VSFB does have suitable foraging, roosting, and potentially limited nesting habitat that condors could utilize if they were present, including potentially suitable nesting habitat located about 2 to 5 miles upstream from the Project site. Immediately upon detecting and confirming that a condor is on VSFB, the Space Force will notify the Ventura Fish and Wildlife Office. Continued coordination between the Service and Space Force will occur if condors are present. The Space Force will implement an adaptive management plan as needed, dependent on number of individuals present, location, and activity level (VSFB 2021a).

Marbled Murrelet (*Brachyramphus marmoratus*): Ornithologists consider marbled murrelets to be rare to very rare much of the year in Santa Barbara County. However, the species may be somewhat regular north of VSFB in the late summer and considered a casual visitor in the spring (VSFB 2021a). Biologists have observed individuals infrequently on and around north VSFB at Lion's Head, at nearby Point Sal, the Santa Maria River, and on south VSFB at Point Pedernales and near Point Conception. As such, this species may occur in the nearshore waters off VSFB, but biologists do not expect nesting to occur because VSFB does not contain suitable nesting habitat for this species.

Unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*): Although shown in the CNDDB, this subspecies is not found in Honda Creek. In 1984-85, the Air Force and cooperators initiated a translocation study; however, that effort failed. The unarmored threespine stickleback has not been found in Honda Creek in more than 25 years, despite numerous surveys for California red-legged frog and tidewater goby, which would adventitiously capture sticklebacks if they were present.

1.4 Additional Taxa Considered

Southwestern pond turtle (*Emys pallida*): The southwestern pond turtle is under review for ESA listing and the species occurs in Honda Creek (MSRS 2009). The Project would adopt measures to minimize direct and indirect impacts to western pond turtles and their habitat. This species is discussed further in Section 4.2.

1.5 Summary of Effects Determinations

Beach layia (*Layia carnosa*). The Project *may affect, and is likely to adversely affect* beach layia. This species has historically been found very close to Honda Bridge (CNDDB #1) in central dune scrub habitat but has not been detected at this occurrence since 2010. Surveys by VSFB and additional surveys by Althouse and Meade have not found beach layia at CNDDB #1 or elsewhere within the Action Area. While CNDDB #1 as historically mapped would not be directly impacted, the occurrence is very close to Project activities and beach layia could potentially occur within the Action Area during any year with favorable rainfall. Another extant occurrence (CNDDB #28) extends from VSFB property onto the UPRR right of way. The known extent of this occurrence lies outside of the area that would be impacted by Project activities.

Tidewater goby (*Eucyclogobius newberryi*). The Project *may affect, but is not likely to adversely affect* tidewater goby because this species is not currently known from the Action Area and was last detected in Honda Creek in 2001. Therefore, a determination of 'discountable" has been made, for which Space Force requests concurrence. It is known from Jalama Creek and the Santa Ynez River and could re-colonize Honda Creek during a high flow event. The Project would implement measures to minimize adverse effects to aquatic habitat including best management practices designed to maintain water quality within the creek.

California red-legged frog (*Rana draytonii*). The Project *may affect, and is likely to adversely affect* California red-legged frog. The species is present in Honda Creek within the Action Area (CNDDB #1442). The Project would adopt measures to protect water quality and to minimize direct and indirect impacts to California red-legged frogs and their habitat.

TABLE 2. SUMMARY OF EFFECTS DETERMINATIONS

Common Name	Scientific Name	Federal Status	Effects Determination
Plants - 1 Species			
Beach Layia	*Layia carnosa*	Endangered	May Affect, and is Likely to Adversely Affect
Wildlife - 2 Species			
Tidewater Goby	*Eucyclogobius newberryi*	Endangered	May Affect, But Not Likely to Adversely Affect (Discountable)
California Red-legged Frog	*Rana draytonii*	Threatened	May Affect, and is Likely to Adversely Affect

2 PROJECT INFORMATION

2.1 Project Location

The Action Area is located within VSFB, along the northwestern coast of Santa Barbara County, approximately 9 miles southwest of the City of Lompoc, California. The existing bridge crosses Honda Canyon and Honda Creek at UPRR Mile Post (MP) 304.88, Santa Barbara Subdivision. Bridge elevation ranges from approximately 15 feet above mean sea level (amsl) at Honda Creek to 117 feet amsl at the bridge deck. The entire Action Area is located within the Point Arguello and Surf United States Geological Survey (USGS) 7.5-minute quadrangles (Figure 1).

2.2 Local and Regional Context

The Study Area and surrounding vicinity is on VSFB, South Base. VSFB is located along the south-central coast of California and covers 99,099 acres in western Santa Barbara County. Santa Barbara County is in a unique transitional ecological region between California's northern and southern plant and animal distributions (VAFB 2021).

The Project is accessible from Coast Road, a coastal thoroughfare that historically connected the Santa Ynez River valley with the Jalama Creek valley as a public transportation route. Developed land uses include roads, utilities, and other infrastructure related to VSFB operations. Terrain within the Study Area includes sandy beaches, rocky shorelines, steep sea cliffs, and stabilized dunes as well as predominantly flat to moderately sloping coastal terraces, ranging between 0 feet on the seashore to 160 feet amsl east of Coast Road. Honda Creek, a perennial stream with surface flows near its mouth that become intermittent and subsurface during dry periods, runs approximately 600 feet westward toward Honda Beach from the existing culverts under Coast Road (Figure 2). Honda Creek is a dynamic system in its lower reaches and the amount of open water, conditions of the estuary, and amount and distribution of vegetation are dependent upon variation in seasonal and interannual rainfall, tides, and storm waves. Photo 1 shows Honda Creek immediately after a significant rainstorm and scouring event that removed vegetation and deposited large amounts of woody debris. Photo 2 shows Honda Creek 12 years later showing significant recolonization by willows and other riparian vegetation upstream of the bridge. Willows are indicated by yellow arrows. Photo 3 shows Honda Creek on October 1, 2021, as a dry streambed. An ephemeral drainage feature that conveys water during storm events is located east of the lower beach access road (Photo 4).



Photo 1. Honda Creek at Abutment 7, located southeast of the bridge, facing north, 29 January 2008.



Photo 2. Honda Creek at Abutment 1, located northeast of the bridge, facing south, 22 September 2020.

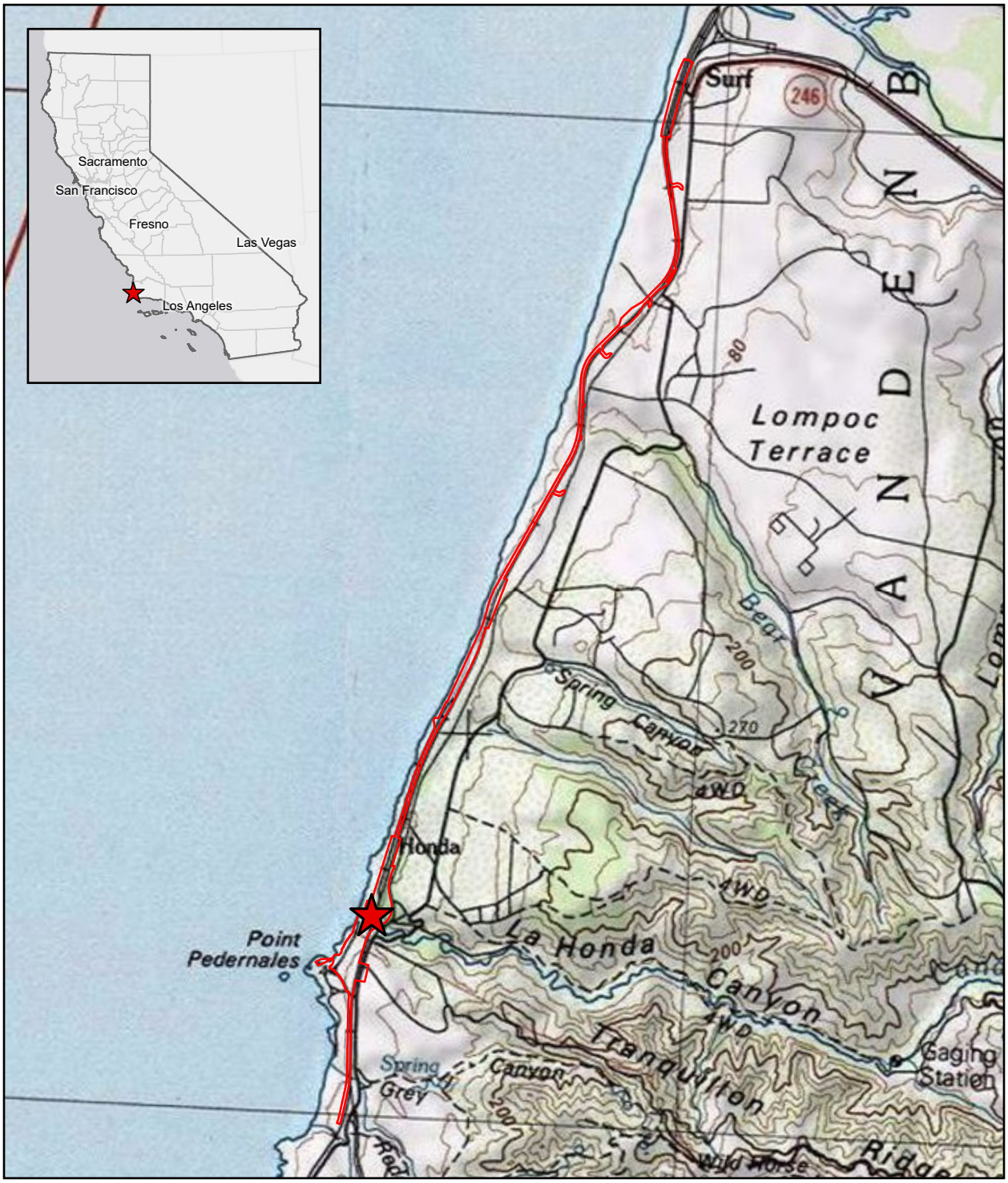


Photo 3. Honda Creek east of Honda Bridge in seasonally dry creek bed, facing east, 1 November 2021.



Photo 4. Ephemeral drainage east of lower beach access road, facing south, 23 June 2021.

Figure 1. United States Geological Survey Topographic Map



Legend

Study Area (182 acres)

Honda Bridge Replacement Location

N

0 0.5 1 Mile

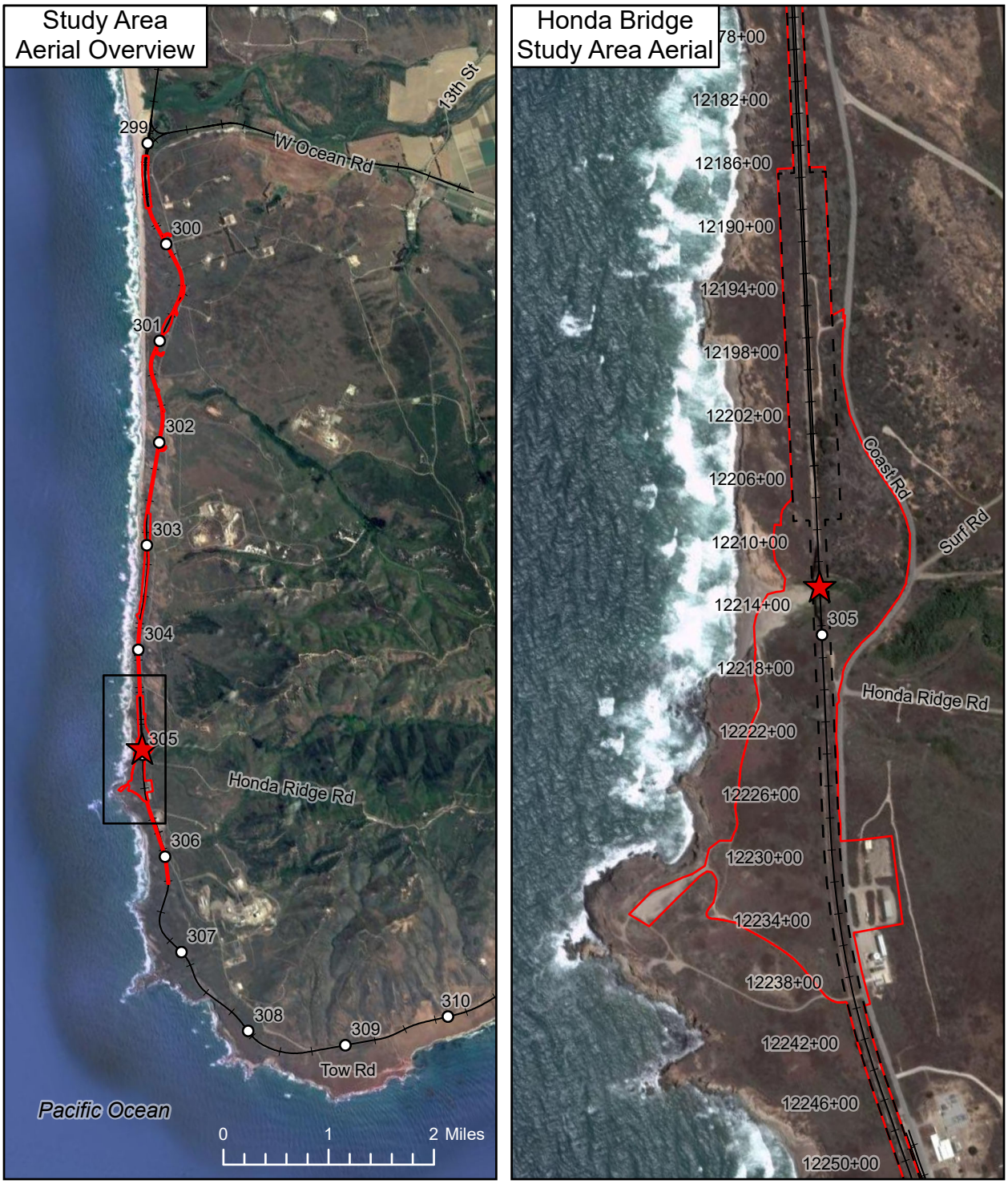
Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.62244°W 34.63748°N
Santa Barbara County, California

USGS Quadrangles: Point Arguello and Surf

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Map Updated:
October 18, 2021 10:37 AM by SAF

Figure 2. Aerial Photograph



Legend

- Study Area (182 acres)
- UPRR Property
- Milepost
- Railroad Track
- Honda Bridge Replacement Location

N

0 500 1,000 Feet

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.61054°W 34.6239°N
Santa Barbara County, California

Imagery Source: Google Maps Satellite

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Map Updated:
October 18, 2021 10:38 AM by ZAR

2.3 Proposed Action

The 30.2-acre Action Area is divided into four Project components: (1) bridge replacement, (2) construction and temporary staging (17.3 acres), (3) fiber optic relocation and replacement (2.6 acres), and (4) wetland/waters restoration (up to 2.0 acres of construction and temporary staging restored) and potential upland enhancement (up to 10.3 acres) for mitigation.

2.3.1 Bridge Replacement

The following information is based on the most recent Bridge Plan (HDR October 29, 2021), which is at 60 percent design completion.

Within their property, UPRR proposes to remove the existing 541-foot Honda Bridge deck and steel towers to construct a new bridge that would be approximately 581 feet in length. The new bridge deck would be supported by 5 new cast-in-place concrete columns (7-feet diameter) with concrete pier caps (columns are a maximum of 95 feet high), anchored by below-ground steel piles and casing. The steel piles and casing would be covered by cast-in-place concrete pile caps that are 14-feet wide and range in length and depth according to Pier number (each pile cap is approximately 0.01-acre):

- 36-feet long and 6-foot thick for Pier 2 pile cap.
- 30.5 feet long and 4-foot thick for Piers 3, 4, 5 pile cap.
- 30.5 feet long and 6-foot thick for Pier 6 pile cap.

The distance between the steel spans would be evenly distributed at 90 feet. To avoid unnecessary biological impacts to Honda Creek and floodplain, the existing Honda Bridge pedestals at Bents 6, 7, 8, and 9 would remain, and may continue to provide scour pools for frog habitat. Existing Abutment 1, and pedestals of Bents 2 to 5, 10 to 13, and Abutment 14 would also remain in upland habitat.

2.3.2 Construction and Temporary Staging

The following information is based on the most recent drawings from AutoCAD files received October 29, 2021 (HDR Inc.), which are at 60 percent design completion.

To support Honda Bridge replacement, Project construction activities would require access improvements and temporary staging areas on UPRR and VSFB property. Consistent with Figure 3a, 17.3 acres of construction and staging activities occur in the Action Area and are described below and summarized in Table 3. Other components within the Action Area consist of up to 2.6 acres for fiber optic relocation and replacement and an additional 10.3 acres for potential restoration, described in Sections 2.3.3 and 2.3.4, respectively.

TABLE 3. CONSTRUCTION AND TEMPORARY STAGING AREA SUMMARY

Site Name		Ownership	Action Area (Ac.)
1a.	Beach Access Road	UPRR and VSFB	0.8
1b.	Southern Borrow Source and Staging	VSFB	1.9
1c.	Lower Beach Access Road	VSFB	0.6
2.	South Abutment 7 Access Road	UPRR and VSFB	0.6

Site Name		Ownership	Action Area (Ac.)
3.	Pier 3 Crane Pad, Lower Causeway	UPRR and VSFB	3.4
4a.	North Abutment 1 and Pier 2 Access Roads	UPRR and VSFB	0.8
4b.	Northern Borrow Source and Staging	UPRR and VSFB	5.8
5.	Laydown/Office Area	VSFB	3.4
TOTAL			17.3

1) Access Road, Staging/Southern Borrow Source

1a) Beach Access Road. Honda Beach is currently accessible via an existing unpaved access road located west of Coast Road. The beach access road entry is approximately 0.4-mile from the south abutment (Abutment 7) and is approximately 2,900 linear feet from entry point across the tracks to the beach. This unpaved road would be utilized for access to and from the southern borrow source, lower causeway, proposed Piers 2 to 6, and Pier 3 crane pad. Currently the access road is approximately 10 to 12 feet wide. From Coast Road through the southern borrow source the road width would be widened as necessary to 12 feet typical width, where improvements would occur only on the inland side (not on the beach side). To achieve the minimum width for construction clearance two turning points (one at the point of entry and the other midway between Coast Road and the southern borrow source) would have surfaces improved (no vegetation clearing warranted) by stabilization with geotextile fabric and road base equivalent to approximately 320 cubic yards of fill (at a maximum depth of 6 to 18 inches).

1b) Southern Borrow Source and Staging Area. The southern borrow source and staging area (1.6 acres) is located along the existing beach access road (0.3-acre). This area is estimated to generate approximately 14,290 cy (at an estimated depth of 3.5 feet to 6 feet) of borrow soil needed for the temporary Pier 3 crane pad and associated lower causeway. Equipment staging, storage, and stockpiles would be located here. This area would also be used to assemble the 700-ton crane that would be stationed at the Pier 3 crane pad.

1c) Lower Beach Access Road. To achieve the minimum 35-foot-wide road width necessary for crane access, the access road north of the southern borrow source would require road widening into an existing hillslope. Permanent road improvements would be achieved by cutting a maximum of 2,145 cy of soil for a block wall depth of 9 feet deep with an additional 1.5:1 retaining slope (total vertical depth of 14 feet). Material removed from the cut slope would be incorporated as fill material for stabilization of the entry road onto Honda Beach and/or the lower causeway.

To achieve vehicular beach access, the lower beach access road would be extended from Honda Beach entry to the lower causeway. This temporary lower beach access road extension would be 35 feet wide, consisting of an estimated 643 cy of fill soil acquired from the southern borrow source and stabilized with road base (maximum fill depth of 5.5 feet).

A temporary sheet pile sea wall approximately 470 feet long would be installed to protect the lower beach access road extension and lower causeway from tidal influence and variable wave action expected throughout the course of construction. Two 48-inch corrugated metal pipes (approximately 90 feet long) would be temporarily installed under the lower beach access road extension to allow runoff to drain from the adjacent unnamed ephemeral feature.

Related VSFB Project: It is important to note that temporary fill for the lower beach access road extension is also part of a separate proposed action described in the VSFB Coast Road culvert repair project that is currently scheduled for completion prior to mobilization of this Project (approximately February 21, 2023). The culvert repair project will last approximately 8 months and proposes a 910 linear foot, 24-foot-wide beach access road extension to the existing culverts under Coast Road (VAFB 2021).

2) **South Abutment 7 Access Road.** Abutment 7 access road would be approximately 600 feet in length and is located west of Coast Road and opposite of the western terminus of Honda Ridge Road. The existing UPRR dirt access road would be filled and abandoned due to cultural resource constraints. A new 20-foot access road would be constructed between the eastern railway ballast and western berm and would remain in place after Project completion. The new access road would run parallel to the railway and be lined with K-Rails between the track and new access roads. As proposed, the new roads would access the eastern side of Abutment 7 and crossover the track to access the western side (Figure 3a). Both the eastern and western Abutment access roads would be cleared of vegetation, with filter fabric or straw covering the native soil and railway ballast prior to adding approximately 1,545 cy of fill material to remain in place (~800 cy east, 745 cy west). Maximum fill depth would be approximately 5 feet for the eastern route and 8.5 feet for the western route. Two small 30-foot by 30-foot temporary crane pads would be constructed at the terminus of each access point. The new Abutment 7 access roads would remain post-construction. Any exposed soil along the road slope would be seeded for stability.

3) **Pier 3 Crane Pad and Lower Causeway.** The Pier 3 crane pad would abut the south-facing hillslope northwest of proposed Pier 3 and extend north into the slope for crane access to proposed Pier 2 and the north abutment. The lower causeway would be located at the bottom of Honda Canyon on the western and eastern sides of the bridge to access proposed Piers 3, 4, 5, and 6. This area is accessible from the lower beach access road described above in Section **1c)**. A temporary construction work area for the Pier 3 crane pad and lower causeway would be acquired from the southern borrow source, with a maximum height of 12 feet. Extension of Pier 3 crane pad to access Pier 2 would require grading into the south-facing hillslope for a maximum cut depth of 24 feet. Fill material for the temporary crane pad and causeway would account for approximately 16,500 cy.

   A sheet pile wall would extend from the lower access road to protect the construction causeway from Honda Beach wave action and fluctuating tides. To protect the construction site from Honda Creek, the temporary fill slope along the eastern edge would be hardened with rip rap, approximately 8 feet high above flow line at a 1.5:1 slope. To protect the construction work area from stormwater, six 72-inch diameter pipes would convey stormwater under the construction work area. The temporary pipes would be approximately 190 to 200 feet long and would extend to an opening in the sheet pile wall. A temporary cutoff wall made up of sheet

pile would be placed downstream from Coast Road culverts to divert stormwater to the six 72- inch diameter temporary pipes. The cutoff wall would redirect stormwater, but would allow normal flow to continue its current path along Honda Creek via a cut hole in the sheet pile. The construction team would utilize the (existing) access road and platform from construction of the culvert repair project to station the crane that would drive the sheet pile diversion structure into the ground.

The construction causeway and access roads would be designed to allow overtopping from potentially heavy storm events, by using a 'burrito' wrap design with 1-foot layers of fill material and fabric under a protective rip rap layer.

A cross-section of the proposed construction impacts within the wetlands and waterways area are provided in Appendix A.

Upon Project completion all temporary cut/fill material would be replaced/removed and all temporarily disturbed areas in the lower construction work area would be stabilized with native vegetation and restored, as needed. The staging area, lower causeway, access, water diversion area, and culvert repair access/staging are considered for future restoration for CRLF and wetland mitigation (Appendix G).

4) Northern Access Roads and Borrow Source

4a) North Abutment 1 and Pier 2 Access Roads. Abutment 1 and Pier 2 Access Roads are accessible west of Coast Road, north of Honda Ridge Road. Road entry is located on an existing UPRR dirt access road located approximately 0.25-mile north of Abutment 1. From the existing access road, a new 20-foot-wide access road west of the railway/ ballast, would extend toward Abutment 1 and split into the lower-Pier 2 access road. Abutment 1 access road would extend to the western side of the abutment and would accommodate one small 30-foot by 30-foot crane pad. Environmental sensitivity for the 12-foot-wide lower-Pier 2 access road requires no excavation or digging of the area, with minimal vegetation clearance as necessary, minimum disturbance to the existing substrate (no metal track machinery), and all access/stabilization proposed for construction would require fill material added to the existing substrate. Upon Project completion, the lower Pier 2 access road would be seeded with native vegetation.

4b) Northern Borrow Source and Staging. The northern borrow source is adjacent to and accessible from Coast Road. The Project would require a borrow source area that is approximately 0.5-acre (maximum 2 feet depth), with an additional contingency area of 0.8-acre. This borrow source area is estimated to generate approximately 7,260 cy of maximum borrow soil provided for Abutment 1 and Pier 2 access roads. Additionally, temporary equipment staging, storage, and stockpiles would be in the adjacent disturbed/cleared vegetation. The north borrow source and staging is approximately 5.8 acres.

5) Laydown/Office Area. The laydown/office area is south of Honda Ridge Road, east of and immediately adjacent to Coast Road. The area is approximately 3.4 acres of land that has been previously disturbed from past development and is the location of Buildings 533 and 541 (Figure 3a). This area is currently comprised of 8 percent building footprints, 30 percent dirt roads/parking, and 62 percent disturbed vegetation. It would be used for temporary offices and as a construction yard all of which would be removed once construction is complete.

2.3.3 Fiber Optic Relocation and Replacement

An existing fiber optic line is located along UPRR property and would be temporarily relocated prior to start of bridge construction. Temporary re-location of the fiber optic lines would require the lines to be cut and re-routed 5,215 feet (~1-mile) above-ground within protective conduit except at driveway crossings where lines would be temporarily buried along the west shoulder of Coast Road. The temporary fiber conduit would lay on previously disturbed/cleared road shoulder approximately 8 feet from the asphalt roadbed or be secured to the guard rail between Honda Station and the existing beach access road (Access 7, Table 4). Mowing would impact an approximately 6-foot-wide strip (approximately 0.6-acre) along the western shoulder of Coast Road where there are no existing guard rails. For further protection, K-rail or a similar roadway barrier may be placed along the shoulder of the road to prevent accidental impacts to the fiber optic conduit.

The temporary reroute would also require two jack and bore pits to reroute fiber on the coast-side of the track: one adjacent to the track at Honda Station and one approximately 25 x 15 feet and 7 feet deep. Additionally, a new permanent hand hole would be placed at the Honda Station jack and bore pit to allow fiber carrier access. On the inland side of the tracks, within the bounds of Honda Station, shallow trenching would be necessary along the historic trench alignment to connect temporary fiber lines at the intersection of the reroute location by Access 6 (Table 4).

Upon bridge project completion, replacement fiber optic lines would be routed through the existing hand holes. The new fiber optic conduit and cables would be replaced from MP 299 at the northern extent through MP 307 at the southern extent (7 miles of new fiber optic cable). Minimal ground disturbance would occur at existing hand hole locations and access trails (Figure 3b). However, additional excavations (approximately 3 x 5 feet and up to 5 feet deep) may be required between hand holes on both sides of the track to expose conduit in potential problem areas, all of which would occur along the historic trench alignment. Fiber optic replacement would account for an additional 0.6-acre portion of the Action Area for 34 hand hole locations and truck/trail access routes from Coast Road.

To summarize, fiber optic relocation/replacement is as follows:

- Required mowing along Coast Road shoulder is approximately 0.6-acre (23,658 sf).
- Jack and bore pits (15 x 38 by 7 ft deep) adjacent to UPRR track at Honda Station and south of beach access road for fiber relocation along west shoulder of Coast Road (up to 0.7-acre for pits and associated work area in developed land on UPRR property).
- 34 hand holes were estimated to be 25 sf each, equivalent to 850 sf (0.02- acre).
- Approximately 10 truck access (average width of 12 feet) and 2 trail access (average width 5 feet) routes are mapped on Figure 3b and summarized in Table 4 below, accounting for approximately 56,135 sf (1.3 acres).

TABLE 4. DETAILED ACCESS ROUTES FOR FIBER OPTIC RELOCATION AND REPLACEMENT

MP	Access Type	Name	Linear Feet	Notes
299.9	Truck Access	Access 1	521.5	Clear and wide dirt road to railroad track

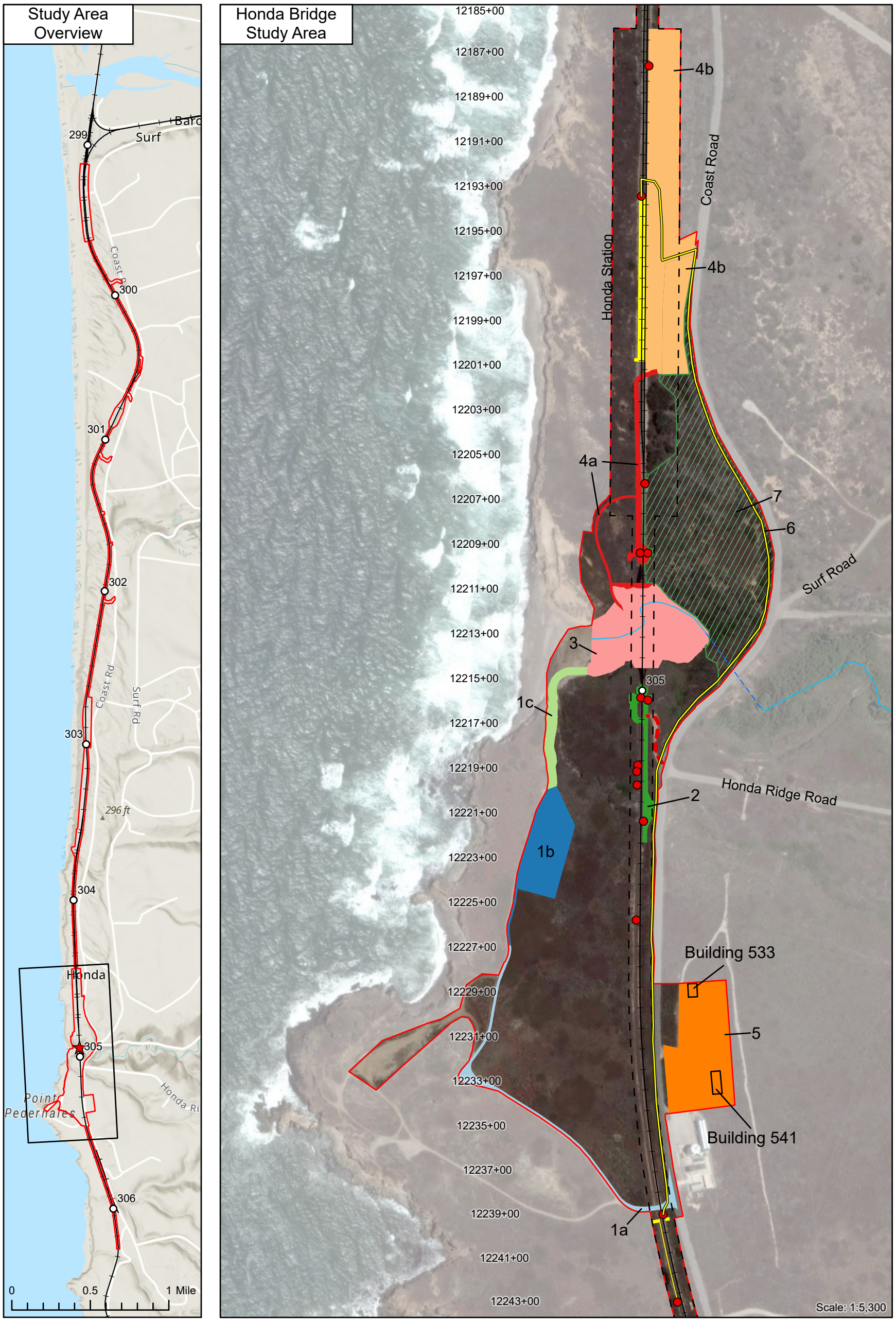
MP	Access Type	Name	Linear Feet	Notes
300.5	Truck Access	Access 2	424.5	Old spur line that leads to track
300.5	Truck Parking/Foot Trail Access	Dead End 1	292.9	Dead end road with foot trail access to ROW
300.7	Truck Access	Access 3	261.5	Wide dirt road: potentially overgrown in middle of road
301.1	Foot Trail Access	Foot Access 1	572.3	0.1-mile foot path: substantially overgrown
301.5	Truck Access	Access 4	91.7	Short, wide dirt road to track
301.7	Truck Access	Access 5	103.4	Short dirt road to track: overgrown near track; overhead pole present
302.1	Truck Access	Dead End 2	195.5	Dead-end road: leads to foot trail 2
302.1	Foot Trail Access	Foot Access 2	248.8	Well established foot trail leading to equipment box on UPRR ROW
304.6	Truck Access	Access 6	975.1	Split access road at Honda Station: wide and clear
305.4	Truck Access	Access 7	69.6	Beach road access
305.9	Truck Access	Access 8	1400.1	Old spur line with multiple trails to track

2.3.4 Potential Mitigation Sites

All riparian habitats within Honda Creek will be restored to their pre-project condition or better for CRLF and wetland mitigation. A Conceptual Restoration Plan is provided in Appendix G.

Acacia habitat within the Honda Creek watershed was included in the Action Area and may be utilized for additional restoration of up to 10.3 acres.

Figure 3a. Proposed Action



Legend

- Study Area (182 acres)
- UPRR Right of Way
- Railroad Track
- Hand Hole Location
- Milepost
- Honda Creek
- Culvert
- No Vehicle Access
- Temporary Fiber Relocation (6)
- Potential Mitigation Site (7)

Action Areas

- Beach Access Road (1a)
- Southern Borrow Source (1b)
- Lower Beach Access Road and Sea Wall (1c)
- South Abutment 7 Access Road (2)
- Pier 3 Crane Pad and Lower Causeway (3)
- North Abutment 1 and Pier 2 Access Roads (4a)
- Northern Borrow Source and Staging (4b)
- Laydown/Office Area (5)
- Temporary Fiber Relocation (6)

N

0 250 500 Feet

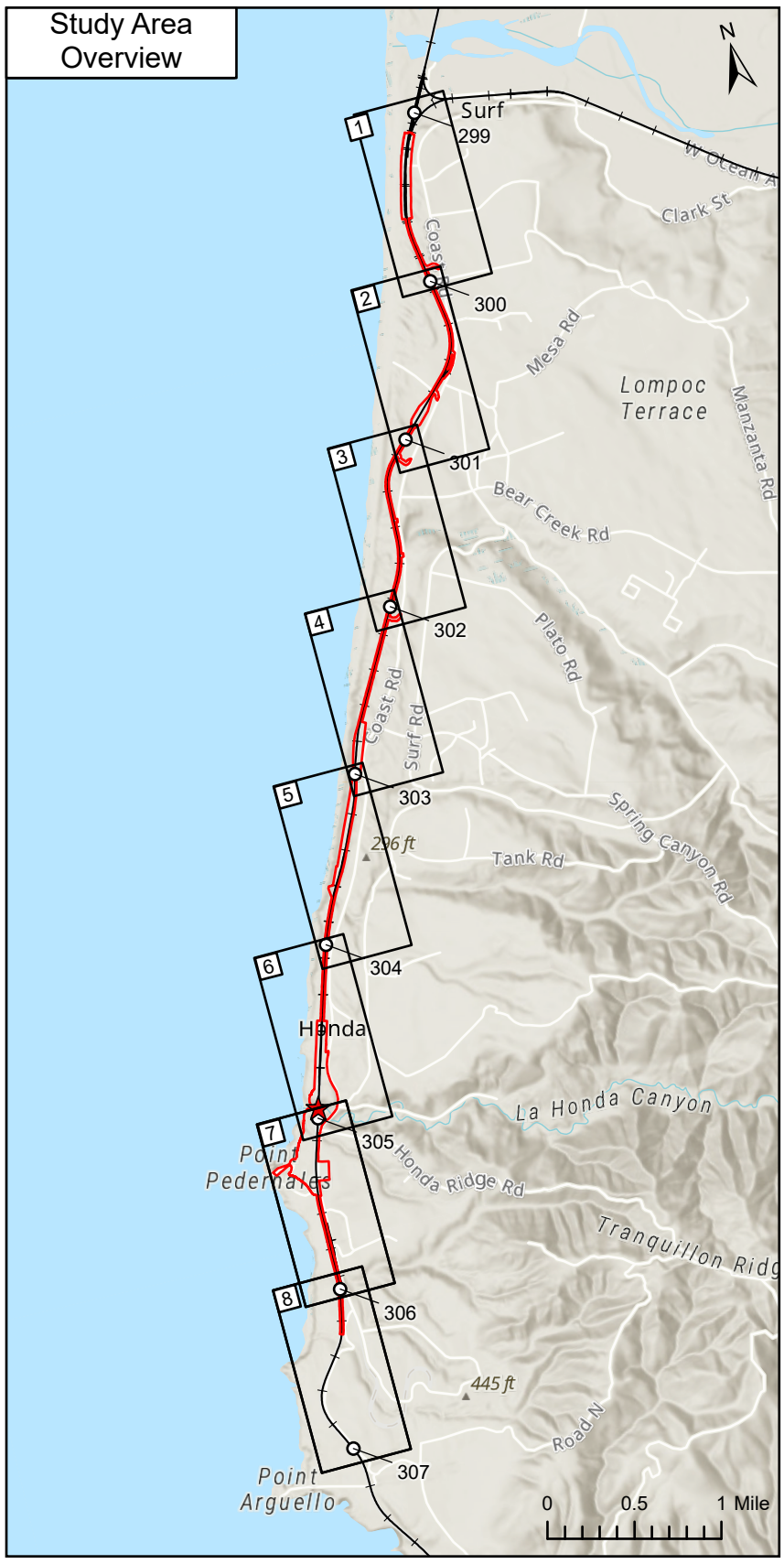
Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.61971°W 34.64141°N
Santa Barbara County, California

Study Area Overview
Basemap: World Topographic
Honda Bridge Study Area
Basemap: Google Maps Satellite

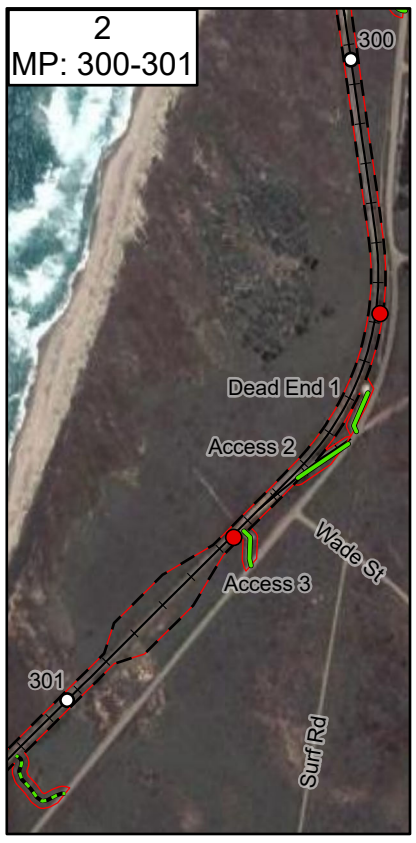
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Map Updated:
December 16, 2021 03:16 PM by SAF

Figure 3b. Proposed Action



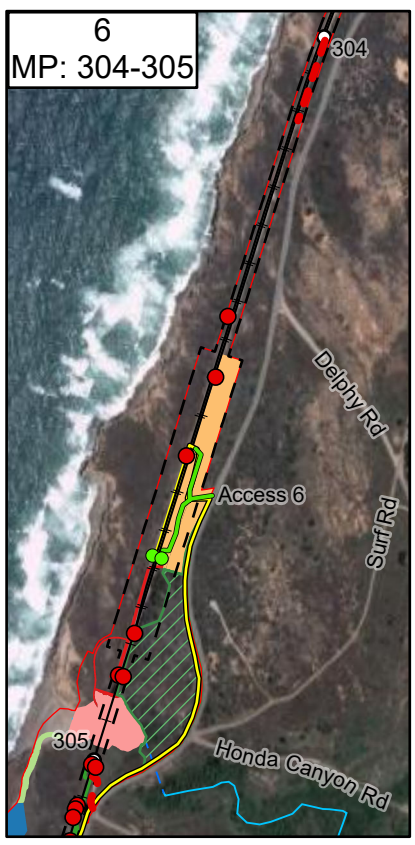
















Legend

- Study Area (182 acres)
- UPRR Property
- Railroad Track
- Fire Hydrant
- Hand Hole Location
- Jack and Bore Location
- Milepost
- Honda Creek
- Culvert
- Truck Access
- Trail Access
- No Vehicle Access
- Beach Access Road (1a)
- Southern Borrow Source (1b)
- Lower Beach Access Road and Sea Wall (1c)
- South Abutment 7 Access Road (2)
- Pier 3 Crane Pad and Lower Causeway (3)
- North Abutment 1 and Pier 2 Access Roads (4a)
- Northern Borrow Source and Staging (4b)
- Laydown/Office Area (5)
- Temporary Fiber Relocation (6)
- Potential Mitigation Site (7)

N

0 1,000 2,000 Feet

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.62086°W 34.6332°N
Santa Barbara County, California

Fiber Optic Extent Overview
ESRI Basemap: World Topographic
Inset Maps (1-8)
Basemap:Google Maps Satellite

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Map Updated:
January 17, 2022 05:41 PM by SAF

2.4 Construction Schedule and Stages

Table 5 provides a summary of construction activities by Stage, and a construction schedule based on 60 percent complete bridge plans. Over the course of 14 Stages, the Project is scheduled to start February 21, 2023, and be completed by October 10, 2024.

TABLE 5. CONSTRUCTION SCHEDULE BY STAGE

Stage	Begin Date	End Date	Activities
Stage 1	Feb. 2023	April 2023	Install SWPP and environmental protection, relocated utilities, prepare Beach access road.
Stage 2	April 2023	May 2023	Install sheet-pile sea wall, install lower causeway/ crane pad, drill casing piers 3, 4, 5.
Stage 3	May 2023	Aug. 2023	Install causeway culverts, fill material, stream containment berm, construct access ramp to Pier #6, install north cut sheet-pile wall. Drive sheets for Piers 3/4/5, soil nail/shotcrete shoring Pier 6. Drive piles for Piers 3/4/5.
Stage 4	Aug. 2023	Sept. 2023	Access roads, deep foundations, shoring, and earthwork
Stage 5	Aug 2023	Oct 2023	Structures and deep foundations
Stage 6	Sept. 2023	Nov. 2023	Deep foundations and structures
Stage 7	Oct. 2023	Nov. 2023	Earthwork and structures
Stage 8	Oct. 2034	Dec. 2023	Earthwork and structures
Stage 9	Dec. 2023	Feb .2024	Structures
Stage 10	Jan. 2024	Apr. 2024	Earthwork and structures
Stage 11	Mar. 2024	May 2024	Structures
Stage 12	Apr.2024	Jun. 2024	Structures
Stage 13	May 2024	Oct. 2024	Deliver all spans, curfew, switch out
Stage 14	Jun. 2024	Oct. 2024	Demolition/disposal, site restoration

2.4.1 Construction Equipment

Project construction staging would be located at the 3.4 acres laydown/office area, 2.5 acres at the southern borrow source, and 5.8 acres at the northern borrow source and staging. Staging areas are proposed for equipment and material storage, bridge component assembly, and spoils stockpile (above floodplain).

Dirt spoils from the installation of the new bridge footings would be temporarily stockpiled within the southern borrow source location. Excess soil would be removed by rail as work trains become available.

All 5 concrete piers would be anchored by below-ground steel piles that would be driven by a single-acting diesel hammer. In addition, the sheet piles would be driven by a hydraulic vibratory driver/extractor. Use of pile-driving equipment would be conducted for approximately 12 to 14 weeks with 1-to-2-day gaps between steel pile and sheet pile locations.

Large equipment used at the construction site would generally be:

- 600-ton crane
- 200-ton crane
- 100-ton crane
- Hydraulic rotary drill rig
- Man-lifts
- Water truck (1)
- Mini excavator
- Light towers
- Crawler/ excavator with demo sheers & bucket
- Bulldozer (bucket & forklift attachments)
- Skip loader
- Rubber tired crane
- Hyster high-capacity lift truck
- Water buffalos
- Vibro hammer
- Diesel hammer
- Concrete pump trucks
- Fork-lifts

3 ACTION AREA

The Proposed Action includes bridge replacement, construction/temporary staging, fiber optic relocation/replacement, and potential restoration. Included in the 30.2-acre Action Area is 10.3 acres of additional habitat restoration area. The Action Area includes all areas that could be affected directly or indirectly by Project implementation and are evaluated in this BA.

3.1 Environmental Baseline

Honda Bridge is a large north/south railroad trestle over Honda Creek at Union Pacific (UP) MP 304.88. The creek enters the Action Area via two large culverts below Coast Road, approximately 350 feet upstream from the bridge where it is lined by central coast arroyo willow riparian habitat. Freshwater vegetation transitions to a coastal salt marsh floodplain near the bridge and transitions to foredune and coastal strand near the creek's outlet to the ocean. California red-legged frogs currently utilize the freshwater habitat within Honda Creek from ponded areas near the current bridge pedestals upstream to and beyond the Coast Road culverts. During and after high rainfall events, surface flow is present from the culverts to the ocean. As flow decreases, a sand berm often closes the creek mouth, and a small estuarine lagoon may form. The lagoon may remain full all year or dry up during the summer leaving a varied habitat of wet sand, gravel, and wetland vegetation. Estuary conditions and the amount of open water are dependent upon variation in seasonal and interannual rainfall, tides, and storm waves and may vary greatly annually and interannually.

East of Honda Bridge and south of the creek and associated riparian, the habitat transitions to central coastal scrub which continues south and west on the canyon's south slope, transitioning to central coastal scrub/iceplant west of the bridge. The west-facing fill slope below Coast Road and above the culverts is central coastal scrub/iceplant which transitions to Acacia/iceplant on the canyon's northern slopes which are iceplant-dominated west of the bridge.

The southern portion of the Action Area west of Coast Road is a gently sloping marine terrace dominated by central coastal scrub and central coastal scrub/iceplant with one pre-existing disturbed/cleared area used by VSFB as a spoils/borrow pit. An existing dirt road currently provides access to Honda Beach to the north and the VSFB spoils/borrow pit to the west via a small spur road. The beach access road leaves Coast Road approximately 0.5 miles south of Honda Bridge and passes over the terrace through central coastal scrub/iceplant before terminating at Honda Beach. An ephemeral drainage that originates south of Honda Ridge Road in the Tranquillon Ridge flows west adjacent to Honda Ridge Road and through a culvert under Coast Road and the railroad. This feature only conveys water during storm events. The lower reach of this drainage in the Study Area exhibits an unvegetated bed of sand and cobbles with iceplant and coastal scrub on the adjacent slopes.

The site of the historic Honda Station is just north of the bridge. Nonnative trees have recently been removed from this site and it is used for UPRR staging of equipment and materials during routine maintenance operations. Northwest of the bridge are sandy soils that are heavily invaded by iceplant (*Carpobrotus* spp.).

The Fiber Optic Action Area lies along Coast Road and the UPRR line and begins at UPRR MP 299 and ends at MP 307. The railroad and Coast Road pass through a variety of habitat types including Acacia, iceplant, central dune scrub, and central coastal scrub. The shoulders of Coast

Road and areas immediately adjacent to the UPRR line undergo routine vegetation mowing and clearance.

Related VSFB Project: It is important to note that temporary fill for the lower beach access road extension is also part of the Proposed Action described in the VSFB Honda Creek Culverts Repair and Corrosion Prevention Project (Culverts Project) that is scheduled to begin approximately April 2022. The Culverts Project will last approximately 8 months and proposes creating a new 910 linear foot 24-foot-wide access road from the end of the current Beach Access Road to the existing culverts under Coast Road. The total impacted area from the new road and Culverts Project work areas will be approximately 0.75 acres (VAFB 2021) and overlaps portions of the Honda Bridge Action Area. Mitigation and restoration of overlapping impacts from the Culverts Project will not occur until after the Honda Bridge Project is complete and Honda Bridge and Culverts Project mitigation and restoration plans will be coordinated with VSFB and any relevant contractors.

3.2 Habitat Type Descriptions

Habitat types were classified and mapped during field visits between May 2018 and July 2021 and are based on a modified Holland (1986) classification used by VSFB (Wildscape 2009). All botanical and wildlife taxa observed during those field visits are listed in Appendix B and Appendix C, respectively. Of the 14 habitats defined within the Study Area (Table 6), 11 are within the limits of the Proposed Action. Figure 4 depicts the mapped habitats within the bridge replacement and construction/staging portion of the Action Area. Most of the Action Area is mapped as acacia or central coastal scrub/iceplant.

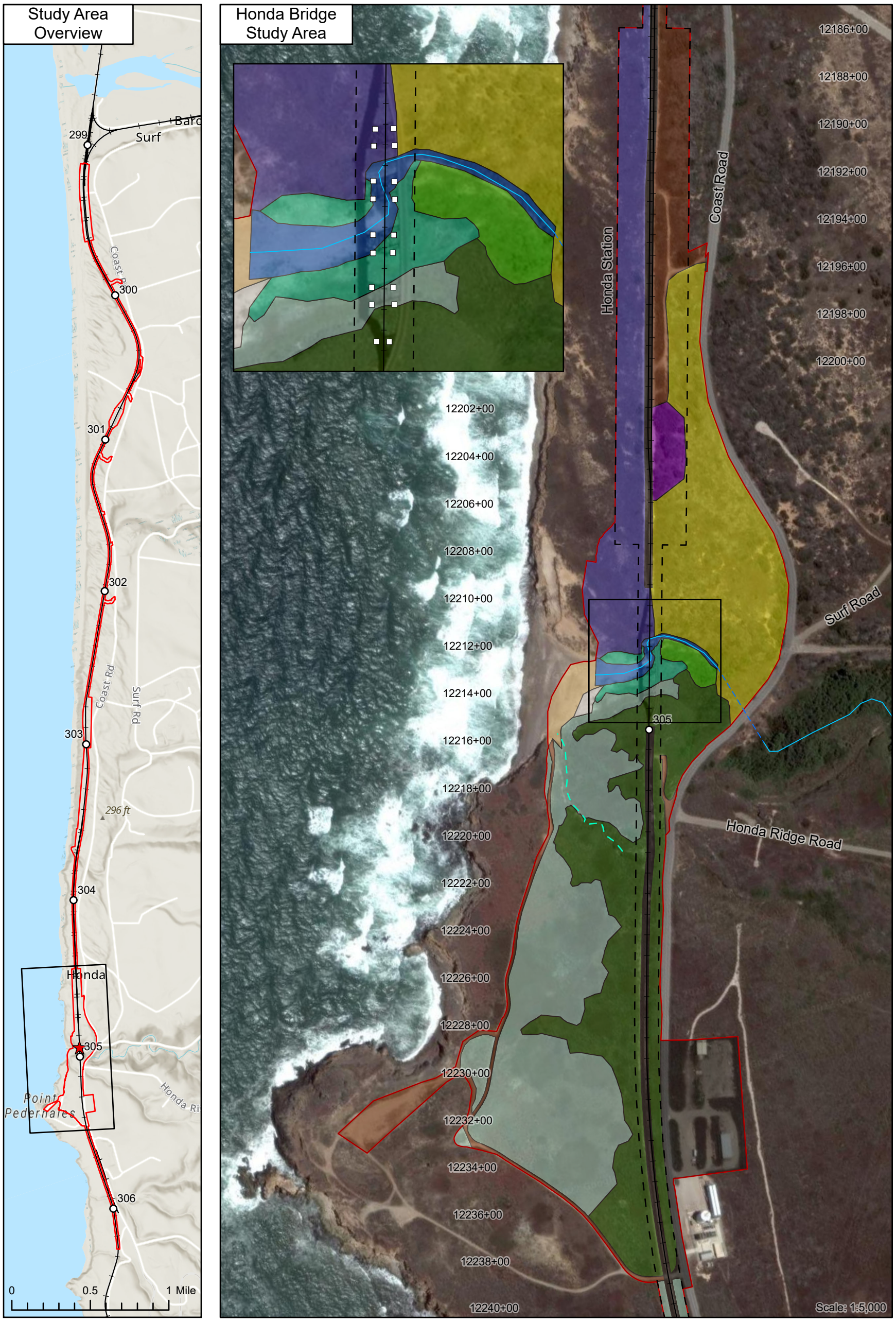
Temporary relocation of the fiber optics would require impacting 0.6-acre due to mowing the west shoulder of Coast Road. Fiber optic access routes are in existing disturbed/cleared habitat, totaling 1.3 acres. In addition, many of the existing hand holes are located along the ballast and are considered developed land. Action Area impacts for each handhole is estimated at approximately 25 square feet for 34 handholes (850 square feet total). Jack and bore pits and associated work area are estimated at 0.7-acre in developed land.

TABLE 6. HABITAT TYPES WITHIN THE STUDY AREA AND ACTION AREA

Habitat Type	Study Area (Ac.)	Work Areas in Action Area	Action Area (Ac.)
Acacia	27.6	Crane Pad/Lower Causeway, Hand Holes, Fiber Optic Temporary Re-route, Potential Restoration Site	12.1
Central Coast Arroyo Willow Riparian and Scrub (Riparian)	0.6	Lower Causeway	0.6
Central Coastal Scrub	25.1	Abutment 7 & Access Road, Southern Borrow Source, Lower Causeway, Hand Holes, Fiber Optic Temporary Re-route	1.2
Central Coastal Scrub/Iceplant	39.4	Beach Access Road, Southern Borrow Source, Lower Causeway, Hand Holes, Fiber Optic Temporary Re-route	2.5

Habitat Type	Study Area (Ac.)	Work Areas in Action Area	Action Area (Ac.)
Central Dune Scrub/Iceplant	14.2	Not in Action Area	0
Coastal Bluff	0.6	Not in Action Area	0
Coastal Brackish/Salt Marsh	0.8	Crane Pad/Lower Causeway	0.8
Coastal Strand	0.9	Lower Access Road, Sea Wall	0.2
Developed Land	36.3	Access Roads, Laydown/Office Area, Hand Holes	4.5
Disturbed/Cleared	5.7	Beach Access Road, Abutment 1 & Access Roads, Northern and Southern Borrow Source, Hand Holes, Fiber Optic Temporary Re-route, Hand Hole Access	6.4
Foredune	0.2	Lower Beach Access Road, Lower Causeway, Sea Wall	0.1
Iceplant	28.8	Abutment 1 & Pier 2 Access Road, Crane Pad, Hand Holes	1.1
Non-Native Trees	1.1	Not in Action Area	0
Seasonal Open Water	0.7	Lower Causeway	0.7
TOTAL	**182.0**		**30.2**

Figure 4. Biological Resources Map



Legend

- Study Area (182 acres)
- UPRR Property
- Railroad Track
- Milepost
- Existing Honda Bridge Pedestals
- Honda Creek
- Culvert
- Ephemeral Drainage

Habitats

- Acacia
- Central Coast Arroyo Willow Riparian Forest and Scrub
- Central Coastal Scrub
- Central Coastal Scrub/Iceplant
- Coastal Brackish/Salt Marsh
- Coastal Strand
- Developed
- Disturbed/Cleared
- Foredune
- Iceplant
- Nonnative Trees
- Seasonal Open Water

N

0 250 500 Feet

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.61971°W 34.64141°N
Santa Barbara County, California

Study Area Overview
Basemap: World Topographic
Honda Bridge Study Area
Basemap: Google Maps Satellite

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BIOLOGICAL AND ENVIRONMENTAL SERVICES

Map Updated:
March 31, 2022 10:32 AM by SAF

3.2.1 Acacia

Woodland dominated by the introduced Sydney golden wattle (*Acacia longifolia*) occurs on the south facing slope inland of Honda Bridge and extends north towards Coast Road. The understory has relatively low species diversity with abundant freeway iceplant and sea fig (*Carpobrotus edulis* and *C. chilensis*) and occasional native central dune scrub and central coastal scrub species.

3.2.2 Central Coast Arroyo Willow Riparian and Scrub

Shrubby arroyo willow (*Salix lasiolepis*) thickets occur along Honda Creek from the Coast Road culverts to just upstream of Honda Bridge. Poison oak (*Toxicodendron diversilobum*), large leather root (*Hoita macrostachya*), and California blackberry (*Rubus ursinus*) dominate the understory. A suite of herbaceous wetland species occurs on the channel banks and floodplain, including annual beard grass (*Polypogon monspeliensis*), water beard grass (*P. viridis*), iris-leaved rush (*Juncus xiphioides*), low bulrush (*Isolepis cernua*), stinging nettle (*Urtica dioica* ssp. *holosericea*), and poison hemlock (*Conium maculatum*). More salt-tolerant species such as fleshy jaumea (*Jaumea carnosa*) begin to appear near the bridge as the water becomes brackish.

3.2.3 Central Coastal Scrub

Central coastal scrub is common on bluff tops and slopes throughout the Action Area. California sagebrush (*Artemisia californica*) is dominant in this habitat with the following shrub species varying in abundance and distribution: giant tickseed (*Leptosyne gigantea*), seaside woolly sunflower (*Eriophyllum staechadifolium*), coastal goldenbush (*Isocoma menziesii* var. *vernonioides*), chaparral coyote brush (*Baccharis pilularis* ssp. *consanguinea*), seacliff buckwheat (*Eriogonum parvifolium*), lemonade berry (*Rhus integrifolia*), mock heather (*Ericameria ericoides*), freeway iceplant, and sea fig. The herbaceous layer is variable in density and composition and includes coast dudleya (*Dudleya caespitosa*), California orach (*Extriplex californica*), California figwort (*Scrophularia californica*), and ocean bluff milkvetch (*Astragalus nuttallii* var. *nuttallii*).

3.2.4 Central Coastal Scrub/Iceplant

Dense mats of freeway iceplant dominate large portions of the Action Area with sea fig, New Zealand spinach (*Tetragonia tetragonioides*), and crystalline iceplant (*Mesembryanthemum crystallinum*) occurring as common associates and dominating in some areas. Other species include California orach, narrowleaf iceplant (*Conicosia pugioniformis*), and occasional native shrub species integrating from adjacent central coastal scrub.

3.2.5 Central Dune Scrub/Iceplant

Central dune scrub/iceplant occurs in the Study Area north of Honda Canyon. Silver dune lupine (*Lupinus chamissonis*) and mock heather co-dominate the shrub layer and other shrub species include California sagebrush, seacliff buckwheat, coastal goldenbush, Blochman's ragwort (*Senecio blochmaniae*). Freeway iceplant and sea fig are common invaders of this habitat. This habitat type is not within the Action Area.

3.2.6 Coastal Bluff

Small, eroded patches of coastal bluff habitat occur on the west side of the UPRR ROW between MP 302.5 and MP 304 along the fiber optic line. This habitat type is not within the Action Area.

3.2.7 Coastal Brackish/Salt Marsh

Coastal brackish/salt marsh occurs in areas upstream, beneath, and downstream of Honda Bridge adjacent to Honda Creek. The Honda Creek estuary contains an assemblage of wetland species whose distributions change in response to seasonal hydrologic processes including scouring and sediment deposition (floods), tidal saltwater inundation (high tides and/or storm waves), and annual and interannual creek flow variation. The transition to brackish marsh begins just upstream of Honda Bridge where salt-tolerant species such as fleshy jaumea and alkali heath begin to increase in abundance. Fleshy jaumea, common three-square bulrush (*Schoenoplectus pungens* var. *longispicatus*), and alkali heath (*Frankenia salina*) dominate, and alkali heliotrope (*Heliotropium curassavicum* var. *oculatum*), saltmarsh bulrush (*Bolboschoenus maritimus* ssp. *paludosus*) and saltgrass (*Distichlis spicata*) are common associates that may be locally dominant. As shown in the Wetland Delineation Report (Appendix F), this habitat type south of Honda Creek exhibited signs of a 3-factor wetland.

3.2.8 Coastal Strand

Below the outlet of Honda Creek and the limit of most foredune vegetation is a broad and mostly unvegetated sandy beach that is often affected by wave action and high tides. Sparse foredune vegetation such as maritime sea-rocket (*Cakile maritima*) and beach saltbush (*Atriplex leucophylla*) may temporarily occur on the upper edges of this area during periods of low tide and wave action. This habitat type is not within the Action Area.

3.2.9 Developed Land

Developed areas within the Action Area include the paved Coast Road, the Union Pacific railroad track, and abandoned VSFB buildings and paved areas that would house construction offices during the Project.

3.2.10 Disturbed/Cleared Land

Portions of the Action Area east of Coast Road and between Coast Road and the railroad contain disturbed ground and empty/paved lots that are a mix of disturbed/cleared open space, non-native annuals, and disturbance-tolerant native shrubs.

3.2.11 Foredune

A small area of foredune occurs south of the Honda Creek mouth and includes beach bur-sage (*Ambrosia chamissonis*), beach saltbush, alkali heliotrope, freeway iceplant, and maritime sea-rocket.

3.2.12 Iceplant

Iceplant (freeway iceplant and sea fig) dominates areas which support very few native shrubs and even fewer native annuals. Iceplant mats are located northwest of the bridge, west of the beach access road, and on UP property within the fiber optic portion of the Action Area. Iceplant dominated habitat northwest of Honda Canyon historically supported central dune scrub and active sand dunes.

3.2.13 Non-native Trees

Groves of non-native trees occur south of the northern borrow source, near the former Honda Station, including forest red gum (*Eucalyptus tereticornis*), blue gum (*E. globulus*), albizia (*Albizia lophantha*), and Monterey cypress (*Hesperocyparis macrocarpa*). Many trees in these stands are decadent and some are dead, creating a moderate amount of standing and fallen woody debris.

3.2.14 Seasonal Open Water

Honda Creek's seasonal lagoon and associated pools change annually and may be un-vegetated or support mosquito fern (*Azolla filiculoides*) and occasional emergent species such as broad-leaved cattail (*Typha latifolia*). When open water habitats dry up during summer, the channel bottom is colonized by disturbance-tolerant wetland species such as annual beard grass, water beard grass, giant horsetail (*Equisetum telmateia* ssp. *braunii*), water speedwell (*Veronica anagallis-aquatica*), water cress (*Nasturtium officinale*), seep monkeyflower (*Erythranthe guttata*), and fringed willowherb (*Epilobium ciliatum* ssp. *ciliatum*). Open water habitat in association with Honda Creek is defined by the ordinary high-water mark and is considered a federal and state water (Waters of the US and State).

4 FEDERALLY LISTED TAXA

This BA includes information about taxa that are federally listed and that occur or could occur within the Action Area based on data from VSFB Installation Management Flight (VSFB 2021b; Table 8;Figure 5). Supplemental occurrence data were acquired from the California Natural Diversity Database (CNDDB) and the California Native Plant Society (CNPS) On-line Inventory of Rare and Endangered Plants of California (CDFW 2021, CNPS 2021), and a species review list obtained from the Information for Planning and Consultation (IPaC) system (USFWS 2021a). Figure 5 depicts records of federally listed plant and animal taxa. The search area included the Point Arguello, Surf, and Tranquillon Mountain USGS 7.5-minute quadrangles. Data were collectively compiled and reviewed according to each taxon's potential to occur within the Study Area. The complete lists of federally listed plant and wildlife taxa derived from these resources are provided in Appendix D and Appendix E, respectively.

As shown in Figure 6, the Action Area does not include any designated or proposed critical habitat as determined by the National Marine Fisheries Service (NMFS) and USFWS (NOAA 2021, USFWS 2021b). Therefore, this BA does not include specific analyses regarding federally designated critical habitat and VSFB is not initiating formal consultation with NMFS on this project.

4.1 Federally Listed Taxa that May Be Affected by the Project

Based on an analysis of habitat conditions observed in the Study Area and known ecological requirements for federally listed plant and wildlife taxa reported from the region, it was determined that three taxa occur or have the potential to occur in the Action Area. One threatened species (California red-legged frog) is present, one endangered species (beach layia) is present, and one endangered species (tidewater goby) has a moderate potential to occur. Each species is discussed in detail below.

4.1.1 Beach Layia (Layia carnosa)

Federal Listing: Endangered (22 June 1992, 57 FR 27848-27859). On September 30, 2020, the USFWS published a proposed rule (85 FR 61684) to reclassify beach layia from endangered to threatened. This potential action is still pending; however, the difference between endangered and threatened status for the purposes of this project is largely irrelevant.

Other Status: CESA Endangered, 1B.1, G2/S2

Species Biology: Beach layia is an annual herb that typically blooms between March and July. It occurs in disjunct coastal habitats from Santa Barbara County north to Oregon. It is known to occur on stabilized sand in coastal strand, dune, and scrub habitats between 0- and 75-meters elevation (CNPS 2021).

Status Within the Action Area: There are two known occurrences within the Action Area, CNDDB #1 and #28 (Figure 5). CNDDB #1, immediately northwest of Honda Bridge, was first documented in 1929 and remains the southernmost occurrence of the species. No beach layia were detected at this occurrence during a 1987 resurvey and the occurrence was considered extirpated until 2009 when three individuals were found. Subsequent surveys found 13 plants in 2010 and no plants in

2012-2019 (SAIC 2012, MSRS 2015, 2017, 2020). Occurrence #28 is near the Fiber Relocation portion of the Action Area and is known to occur on the UPRR ROW in one location. Beach layia has been found at this occurrence every year since 2010 with the population fluctuating greatly depending on rainfall timing and totals. Surveys in 2010 and 2019 detected high counts of 2,959 and 3,145 individuals, compared to low counts of 27 in 2012 and 53 in 2014 (MSRS 2020). Sandy coastal scrub and dune habitats are highly suitable for beach layia, and this species is known to occur in the fiber optic portion of the Action Area.

Critical Habitat: The Service has not designated critical habitat for beach layia. As a result, the Proposed Actions do not occur within designated critical habitat.

Survey Methods: Known occurrences and suitable habitat within the Action Area were surveyed by qualified botanists in 2018 and 2021. Suitable habitat includes open sandy soil north of Honda Canyon and west of Coast Road; areas completely covered by iceplant are unsuitable for beach layia and most other annual plant taxa. Suitable areas were carefully searched for beach layia during the appropriate season. A reference site with blooming plants on VSFB property (CNDDB #28) was visited during the 2021 survey.

Survey Results: Beach layia was not detected within the Action Area during 2018 or 2021 surveys of occurrences #1 or #28 but was found blooming just west of the Action Area in the western portions of CNDDB #28 on VSFB property in 2021.

4.1.2 Tidewater Goby (Eucyclogobius newberryi)

Federal Listing: Endangered (7 Mar 1994, 59 FR 5494-5499)

Other Status: CDFW SSC, G3/S3

Species Biology: The tidewater goby is a relatively small fish (usually less than 50 mm standard length), with large pectoral fins and pelvic fins that join to form an abdominal disc. The anterior distal portion ($1/4^{th}$ to $1/3^{rd}$) of the dorsal fin has a pale to colorless patch that is diagnostic (Kells et al. 2016). Males are tan to brownish-olive overall and may appear nearly transparent while females develop darker coloration ranging to nearly black (USFWS 2014).

Tidewater gobies occur in generally brackish waters of coastal lagoons, estuaries, salt marshes, and the lowest reaches of coastal streams (USFWS 2014). Ideal conditions include salinities of less than 10 ppt, temperatures of 8 °C to 25 °C, and well-oxygenated waters (Moyle 2002, USFWS 2014). They are not present in areas where steep rocky substrate occurs without sandy beaches and estuaries. Reproduction may occur throughout the year but peaks in April and May (USEPA 2010; USFWS 2014). Males dig burrows 10 to 20 cm deep in coarse sand and females lay 300 to 500 eggs that stick to the burrow wall. The males then guard the nests for several days until young hatch and become pelagic. Tidewater gobies are short-lived and generally live for one year. Local populations range from a few to several thousand individuals (USFWS 2005).

Tidewater goby prey includes aquatic insect larvae and small crustaceans such as mysid shrimp and amphipods. Gobies are in turn eaten by steelhead, staghorn sculpin, wading birds, and piscivorous waterfowl (USEPA 2010). Threats include pollution, sedimentation, breaching of lagoon sandbars, channelization of habitat, coastal development, and competition with or predation by nonnative fish species (Moyle 2002; USFWS 2014).

Tidewater gobies are found only in California, occurring along the coast from the Smith River near the Oregon border to Agua Hedionda Lagoon in San Diego County (USFWS 2014). The nearest occurrences to the Action Area are in Jalama Creek (CNDDB #59), approximately ten miles to the southeast, and the Santa Ynez River (CNDDB #58), approximately six miles to the north. Populations of tidewater goby north of approximately Palos Verdes, CA, are currently under consideration for either down-listing to Threatened (Federal Register 76-12, January 2011), or delisting due a proposed taxonomic split between northern and southern taxa (Swift et al. 2016).

Status Within the Action Area: The species historically occurred in Honda Creek and was first detected there in 1995 (Lafferty et al. 1999). It was detected again in 2001 (MSRS, unpublished data) but seine net surveys in 2008 (MSRS 2009), 2015, 2016, and 2017 (MSRS, unpublished data; R. Evans pers. comm.) did not detect any tidewater gobies and the species is presumed to be extirpated from Honda Creek. The Honda Creek estuary lagoon historically remained full through summer but completely dried up in 2013 and did not refill again until winter of 2016-2017. Since 2017 it has dried up each year during the summer months rendering habitat unsuitable for tidewater goby recolonization (VAFB 2021).

Critical Habitat: The Service first designated critical habitat for the tidewater goby on 20 November 2000 (65 FR 69693-69717). They have revised this designation a few times, with the latest revision occurring on 06 February 2013 (78 FR 8745-8819). VSFB was exempted from critical habitat designation under Section 4(a)(3) of the ESA. As a result, the Proposed Actions do not occur within designated critical habitat.

Survey Methods: Honda Creek was visually searched for tidewater gobies during California red-legged frog surveys on 18 March, 6 and 27 April, and 24 and 25 May 2021.

Survey Results: No tidewater gobies or other fish species were detected within Honda Creek; however, it is possible that the species may become re-established in Honda Creek from the Santa Ynez River following a significant rain event.

4.1.3 California Red-legged Frog (Rana draytonii)

Federal Listing: Threatened (23 May 1996, 61 FR 25813-25833)

Other Status: CDFW SSC, G2G3/S2S3

Species Biology: California red-legged frogs are the largest frog native to the state with adults sometimes reaching five inches in length. Adult color may be reddish to gray, often with a dark mask, and the legs may or may not have characteristic red shading (Stebbins 2003). An important identifying character is the presence of prominent dorsolateral folds positioned halfway between the frog's spine and each side and extending from just behind the eye to the joint of the legs (USFWS 2002; Stebbins 2003).

Habitat requirements include aquatic breeding sites mixed with riparian and upland dispersal habitats. California red-legged frogs have been known to migrate up to a mile across upland areas to find nearby water sources. They generally require seasonal pools or streams that hold water until late summer for successful breeding, which occurs from November through April (USFWS 2002). Eggs are deposited on emergent vegetation such as rushes or cattails with egg masses containing 2,000 to 5,000 eggs floating at or near the surface. The eggs hatch in 6 to 14 days depending on water temperature, with tadpoles developing in 20 to 22 days and terrestrial frogs developing in

11 to 20 weeks. Reproduction begins when frogs reach 2 to 3 years of age. They may live for 8 to 10 years but average lifespan is likely lower (USFWS 2002).

Adult and subadult California red-legged frogs feed primarily at night. Foraging occurs along shorelines, at the water surface, and in adjacent riparian areas. Adults consume large invertebrates and some small vertebrates including chorus frogs (*Pseudacris* spp.) and mice (e.g., *Peromyscus* spp.) which may constitute a significant portion of their diet (USFWS 2002). Threats include habitat fragmentation, degradation, and loss, urbanization, agriculture, water impoundments, channelization and flood control, predation by introduced centrarchid fishes, crayfish, and bullfrogs (*Rana catesbeiana*), and chytrid fungus infection (*Batrachochytrium dendrobatidis*) (USFWS 2010; 2002).

California red-legged frogs were once quite common throughout the state, occurring from sea level to elevations of about 5,000 feet but have been extirpated from approximately 70 percent of their former range. They now occur primarily below 3,500 feet in coastal drainages of central California from Marin County south to Ventura County (USFWS 2002).

Status Within the Action Area: Within the Action Area, the species has been documented between Honda Bridge and the Coast Road culverts (CNDDB #1442). They are also present at five additional occurrences within Honda Creek upstream of Coast Road (CNDDB #1443, 1438, 1439, 1440, 1441).

Critical Habitat: The Service originally designated critical habitat for CRLF on 13 March 2001 (66 FR 14626). They revised this designation on 13 April 2006 (71 FR 19244) and on 17 March 2010 (75 FR 12816). In the 2010 Final Rule, VSFB was excluded from the designation under section 4(b)(2) of the ESA. As a result, the Proposed Actions do not occur within designated critical habitat.

Survey Methods: Four protocol-level California red-legged frog surveys (two day and two night) were conducted by permitted Althouse and Meade, Inc., biologists in Honda Creek from the Coast Road culverts to Honda Beach. All habitat was visually searched for adults, larvae, and egg masses. Additional observations were made during two non-protocol site visits.

Survey Results: California red-legged frogs were detected within the Action Area during all four protocol-level surveys, one non-protocol survey, and one incidental survey. Table 7 depicts all detections and survey dates.

TABLE 7. 2021 ALTHOUSE AND MEADE CALIFORNIA RED-LEGGED FROG SURVEY RESULTS

Date	Survey Type	Adults	Larvae	Egg Masses
18 March 2021	Non-protocol	0	0	1
6 April 2021	Non-protocol	0	0	2
27 April 2021	Protocol (day)	2	100	0
27 April 2021	Protocol (night)	11	150	0
24 May 2021	Protocol (night)	5	150	0
25 May 2021	Protocol (day)	0	100	0

4.2 Additional Taxa That May be Affected by the Project

4.2.1 Southwestern Pond Turtle (Emys pallida)

Federal Listing: Under Review

Other Status: CDFW SSC, G2G3/S3

Species Biology: The southwestern pond turtle was historically treated as one of two subspecies (*Emys marmorata pallida*) of the western pond turtle (*Emys marmorata, s.l.*) described by Seeliger (1945). Spinks et al. (2014) documented genetic differentiation between two populations that roughly align with Seeliger's morphologically defined subspecies boundaries. Their results support recognition of two species, the northwestern pond turtle (*Emys marmorata*) and the southwestern pond turtle (*Emys pallida*). While their treatment was not immediately adopted by all authorities, past threat assessments have treated the two subspecies separately (e.g., Jennings and Hayes 1994, Thomson et al. 2016). The current ESA listing proposal adopts the two-species treatment with both species being considered for listing (Shaffer et al. 2019). While the southwestern pond turtle (*Emys pallida*) is the taxon present on VSFB, much of the natural history studies cited herein apply to the western pond turtle, *s.l.*

Southwestern pond turtles are small to medium sized turtles with adults attaining carapace lengths up to 210 mm (Holland 1994, Stebbins 2003). Overall coloration, which generally darkens with age, may be yellowish, olive, brownish, blackish or a mix of these colors (Holland 1994). Carapace shields may be un-patterned but generally have dark radiating lines (Stebbins 2003). Holland (1994) details differences in structure and coloration of males and females.

The southwestern pond turtle may be found in a variety of freshwater habitats including ponds, lakes, marshes, brackish lagoons, rivers, and streams with adequate pools (Reese and Welsh 1997, Pilliod et al. 2013, Thomson et al. 2016). Plentiful basking sites are required, and these may include logs, flattened reeds, rocks, and muddy banks (Holland 1994). Basking sites must be near suitable cover such as submerged rocks or logs, cut banks, or overhanging vegetation (Holland 1994). Upland areas are required for nesting and overwintering, and western pond turtles may spend a significant portion of the year in terrestrial habitats (Ultsch 2006, Pilliod et al. 2013, Thomson et al. 2016). Terrestrial overwintering sites are usually within 100 meters of water but may be as far as 500 meters (Holland 1994). Egg laying typically occurs from April through July when females excavate nests in upland habitat (Holland 1994, Scott et al. 2008). Eggs hatch in fall and turtles may disperse soon after or overwinter in the nest and disperse the following spring (Holland 1994, Reese and Welsh 1997). The southwestern pond turtle diet includes aquatic invertebrates, carrion, algae, plant matter, and occasionally small fish or amphibians (Bury 1986, Holland 1994).

The species was historically present in many drainages of the Coast, Transverse, and Peninsular Ranges from southern San Francisco Bay to Baja California (Stebbins 2003, Thomson et al. 2016). Urbanization, wetland reclamation, channelization of waterways, mortality on roads, and increased rates of juvenile predation by nonnative animals have led to population declines and local extirpations (Holland 1994, Thomson et al. 2016, Shaffer et al. 2019, Nicholson et al. 2020).

Status Within the Action Area: The southwestern pond turtle has been recorded within Honda Creek approximately three miles upstream of the Honda Bridge (MSRS 2009). The species has

not been detected within the Proposed Action Area but could occur, especially in years with high rainfall.

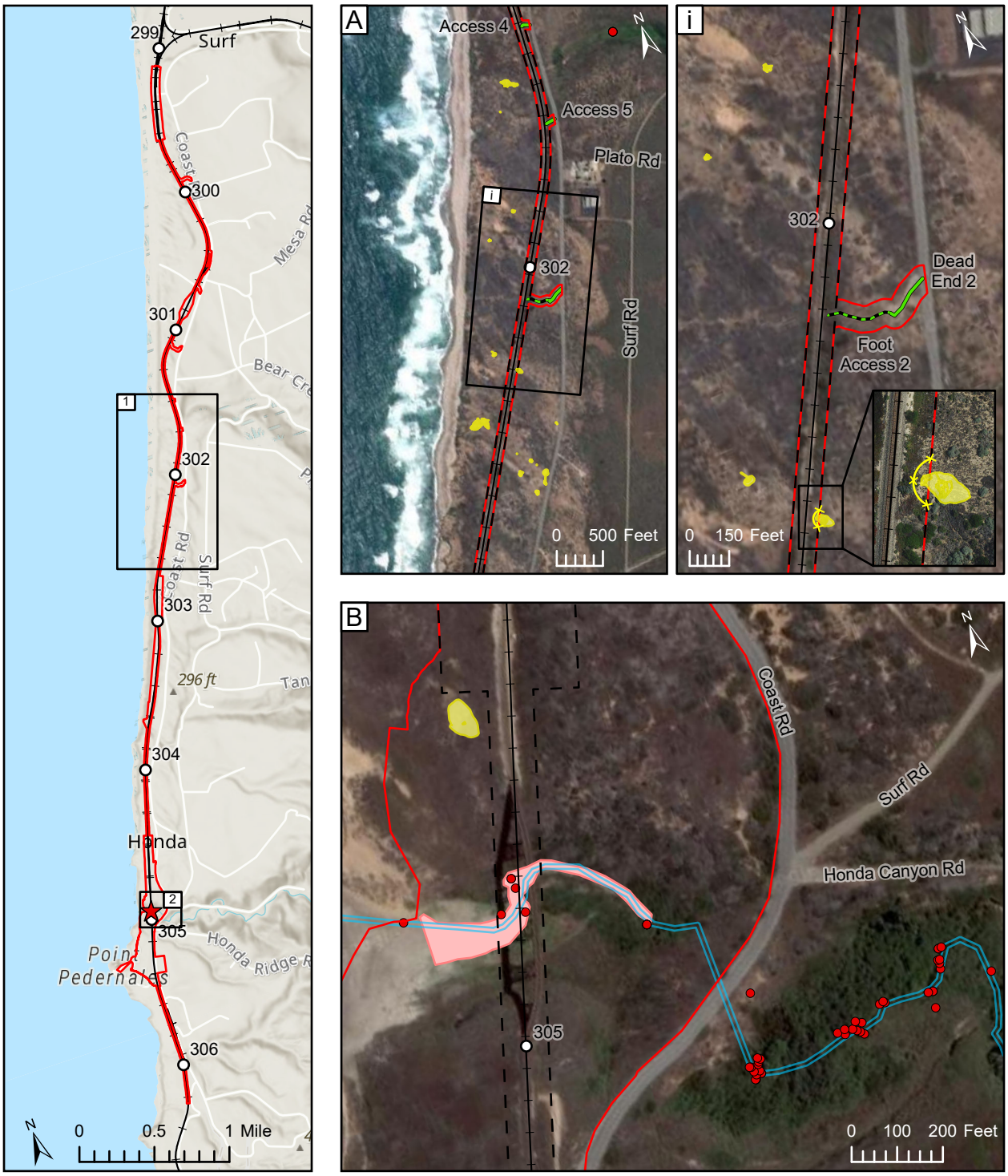
Critical Habitat: No critical habitat has been designated as the species remains under review for ESA listing.

Survey Methods: No targeted surveys occurred. Wildlife, botanical, and wetland surveys as well as two daytime California red-legged frog surveys covered Honda Creek from the Coast Road culverts to the Honda Bridge.

Survey Results: There were no incidental detections of southwestern pond turtles during Project surveys for California red-legged frogs or other natural resources. The species has been incidentally detected during aquatic surveys in Honda Creek, the nearest detection being approximately three miles east of the Honda Bridge (MSRS 2009).

Avoidance and Minimization Measures: Minimization measures specific to the southwestern pond turtle include daily work site surveys (MM-25) and relocation (MM-26) that may occur in conjunction with daily surveys for California red-legged frogs (MM-13). Other measures that cover southwestern pond turtles include aquatic species and habitat pollution prevention measures (MM-3 through MM-11), ERTEC wildlife fencing of worksites (MM-12), worker education, which will cover the southwestern pond turtle (MM-14), trash management to reduce predator attraction (MM-15), development of an HMMP that will also benefit southwestern pond turtles (MM-16; Appendix H), the protection of upland habitat outside of work areas (MM-18), and the development and adoption of a Spill Prevention Plan (MM-22).

Figure 5. Federally Listed Species Observed Within the Study Area



Legend

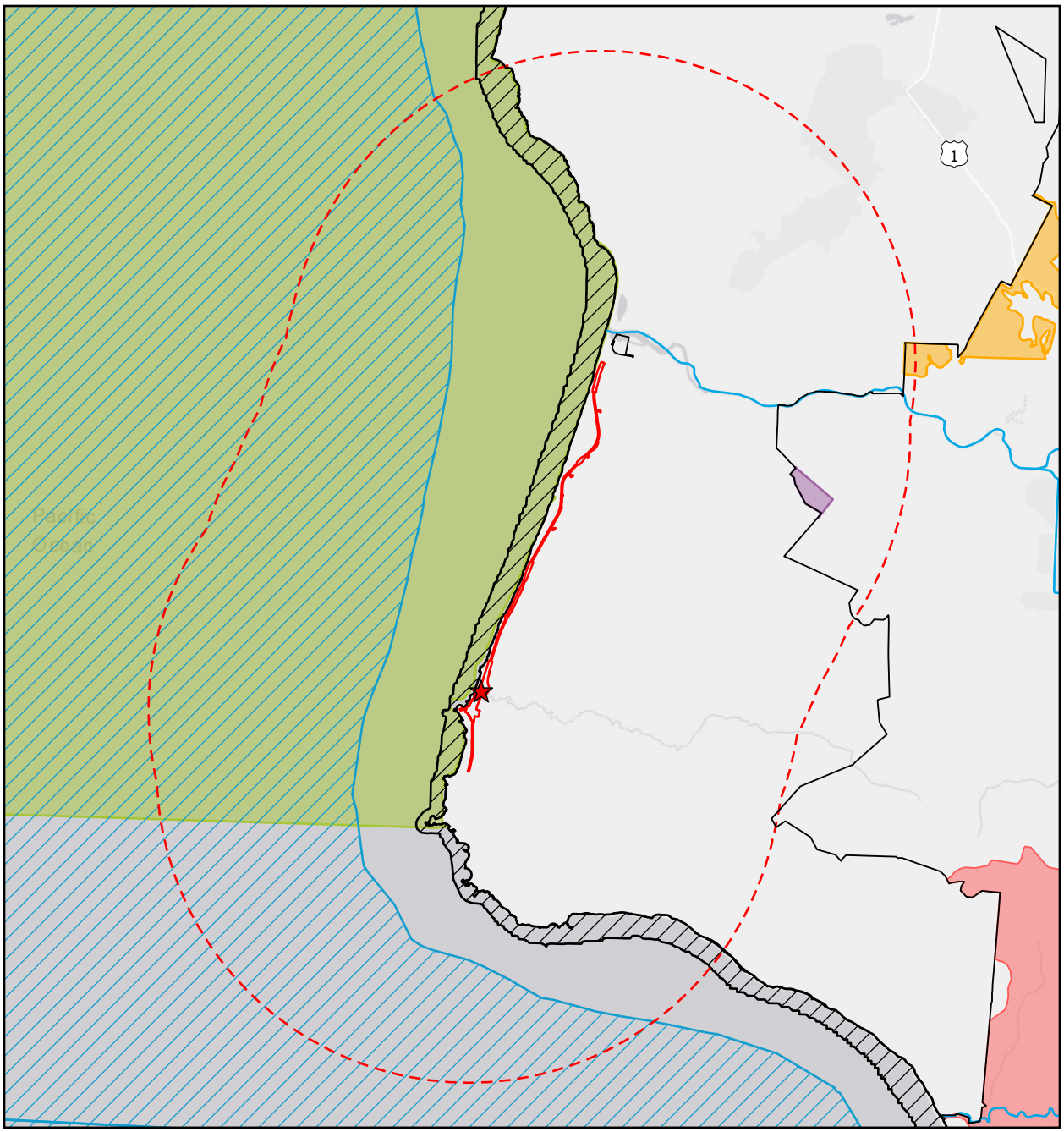
- Study Area (182 acres)
- UPRR Property
- Railroad Track
- Milepost
- Truck Access
- Trail Access
- Beach Layia* (CNNDB #28)
- Beach Layia* (CNDDB #1)
- Beach Layia Protection Fence
- Tidewater Goby* (Historic Extent)
- California Red-legged Frog
- California Red-legged Frog*

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.62315°W 34.63758°N
Santa Barbara County, California

Basemap(s):
ESRI World Topographic
Google Maps Satellite

Data:
*VSFB is the originator of the displayed data
(Controlled Unclassified Information)

Figure 6. National Marine Fisheries Service and United States Fish and Wildlife Service Critical Habitat



Legend

- Study Area (182 acres)
- 5-Mile Buffer
- Honda Bridge Replacement Location

USFWS Critical Habitat

- La Graciosa thistle
- Vandenberg monkeyflower
- California red-legged frog
- VSFB Boundary

NMFS Critical Habitat

- Black abalone
- Humpback whale
- Leatherback turtle
- Steelhead

N

0 1 2 Miles

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.62244°W 34.63748°N
Santa Barbara County, California

NMFS/USFWS Critical Habitat Data Last Updated: April 2021

TABLE 8. FEDERALLY LISTED TAXA THAT OCCUR IN THE REGION

Common Name	Scientific Name	Federal Status	Blooming/ Breeding Period	Habitat Preference	Potential to Occur
Plants - 1 Species					
Beach Layia	*Layia carnosa*	FE	Mar-Jul	On sparsely vegetated, semi-stabilized dunes, usually behind foredunes; 0-75 m (CNPS 2021, Jepson 2021).	**Present**. Although this species was not observed within the Action Area during the 2018 or 2021 surveys, it was found immediately adjacent to the Action Area and has occurred within the Action Area in years past.
Wildlife – 2 Species					
Tidewater Goby	*Eucyclogobius newberryi*	FE	n/a	Found in brackish coastal lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	**Moderate**. This species formerly occurred in Honda Creek and could re-colonize from the Santa Ynez River.
California Red-legged Frog	*Rana draytonii*	FT	Jan-Sep	Lowlands and foothills in or near sources of deep water with dense, shrubby, or emergent riparian vegetation.	**Present**. This species occurs in Honda Creek.

Abbreviations: FE=Federally Endangered FT=Federally Threatened

5 EFFECTS ANALYSIS

As shown in Table 6, twelve habitat types are located within the Action Area and would be impacted by the Proposed Action. Impacts to acacia, disturbed/cleared land, and developed land would have no effect on federally listed taxa as these habitat types do not support listed taxa that occur or potentially occur within the Action Area.

Proposed Actions that would affect Honda Creek would be within federal and state jurisdiction under Section 404 (USACE) and 401 (RWQCB) of the Clean Water Act (CWA), and the California Coastal Commission's (CCC) Coastal Act. A Delineation of Potentially Jurisdictional Wetlands and Waters is provided in Appendix F (Althouse and Meade, Inc. 2021). As described in Appendix F, Honda Creek is considered a federal and state water. Associated habitats depicted in

Figure 7 are considered federal and state jurisdictional wetlands and impacts would be regulated by USACE and RWQCB, requiring permits and mitigation as appropriate. An unnamed ephemeral drainage feature (federal and state water) at the lower beach access road may also require regulatory permits and compliance. In addition, impacts to Environmentally Sensitive Habitat (ESH) defined by the CCC would require compliance with the California Coastal Management Program and issuance of a coastal development permit (CDP). Permanent impacts for three proposed pile caps for Piers #3, #4, #5 within waters/wetlands would total approximately 0.03-acre (0.01 for each pile cap). Impacts associated with tidewater goby and California red-legged frog are further discussed in Sections 5.2 and 5.3, respectively.

Impacts and mitigation ratios for federal and state wetlands and waters are included in Table 9.

TABLE 9. JURISDICTIONAL IMPACTS AND MITIGATION

Jurisdictional Waters/Wetlands	Impacts (acres)		Mitigation Area (acres)*			
	Temp	Perm	Ratio (Perm. Imp.)	Perm. Mitigation Req'd	Restoration and Enhancement of Temp Impact Areas	Creation of CRLF Pools
Federal & State Non-Wetland Waters	0.66	0.02	1.25:1	0.025	0.65	0.025 *(1090 sf))*
Federal & State Wetland	0.92	0.01	1.25:1	0.0125	0.92	0.0125 *(544 sf)*
State-Only Wetland	0.42	0	n/a	0	0.42	0
TOTAL	**2.00**	**0.03**		**0.038**	**2.00**	**0.038** *(1634 sf)*

*Mitigation and habitat breakdown is detailed in Appendix G (Habitat Restoration Plan).

Impacts to central coastal scrub and central coastal scrub/iceplant for southern borrow source/staging and the lower causeway would result in negligible environmental impacts except where these impacts affect biological resources such as sensitive plants. Impacts to iceplant would result in negligible environmental impacts except where these impacts affect biological resources such as sensitive plants. Open sandy soil within iceplant habitat north of Honda Canyon will be avoided where practicable. Where avoidance is not practicable soil will be salvaged (Section 6.1). Federally listed plants were not found within the Action Area during Project surveys; however, beach layia is known to occur within the proposed Action Area and is further discussed in Section 5.1.

5.1 Beach Layia

5.1.1 Direct Effects

Beach layia could be directly affected by ground disturbing construction activities, vehicular traffic, and foot traffic. The species was not observed within the Action Area during surveys in 2018 or 2021 but has historically been present at two occurrences and is known to occur within the Action Area. Neither of the known occurrences would be directly impacted by the Project and both would be clearly marked for avoidance for the Project's duration. To further minimize

potential impacts, potential beach layia habitat within and adjacent to the Action Area (including central dune scrub, central dune scrub/iceplant, and iceplant north of Honda Canyon) would be surveyed annually by a qualified botanist. Surveys would occur during the appropriate season and prior to any ground disturbing activities and beach layia would be mapped and fenced for avoidance for the duration of the Project (MM-1). If beach layia habitat is impacted or if beach layia is detected within the Project footprint and avoidance is not possible, then soil would be salvaged and replaced post-construction and weed management would be implemented (MM-1). All impacted iceplant outside of known beach layia habitat north of Honda Bridge would be restored with native seed mixes (MM-2) upon Project completion and nonnative weed control implemented (see MM-23C).

5.1.2 Indirect Effects

The introduction of nonnative weeds to the Action Area could result in indirect effects to beach layia. Construction vehicles and equipment can transport weed seeds and lead to the establishment of new weed populations in beach layia habitat and other sensitive habitats. To reduce the transport of nonnative seeds and vegetative material, all construction vehicles and equipment would be thoroughly cleaned prior to arrival and inspected before being allowed to enter VSFB (MM-17).

5.1.3 Effects Determination

May Affect, Likely to Adversely Affect. Beach layia is present within the fiber optic portion of the Action Area but is not known to be present within areas that would be directly impacted by the Project. However, given adequate and appropriately timed rainfall, it could occur within areas that will be impacted by the Project. All known beach layia occurrences would be fenced and avoided for the duration of the Project. Potential habitat within the Action Area would be surveyed annually and fenced for the duration of the Project if beach layia were found. If beach layia habitat or plants are found and cannot be avoided, topsoil would be salvaged and replaced during post-Project restoration and weed control would be implemented. To prevent the unintentional introduction of competitive nonnative plant species, vehicles and equipment would be cleaned and inspected prior to arrival in the Action Area.

5.2 Tidewater Goby

5.2.1 Direct Effects

Tidewater gobies are not currently present within the Action Area. No significant long term direct effects to the tidewater goby are anticipated to occur from the proposed Project.

5.2.2 Indirect Effects

Although UPRR's proposed erosion and sediment control measures would minimize the possibility of sediment and pollutants entering Honda Creek, work within riparian habitat during access road, causeway, and crane pad construction could adversely affect water quality and affect potential tidewater goby habitat. Prior to Project commencement, baseline water quality measurements would be taken, and water quality monitored for the Project's duration (MM-3). Appropriate erosion, sediment, and pollution control measures would be implemented to minimize

potential runoff and prevent spills from affecting aquatic habitat (MM-4 to MM-9). All riparian habitat outside of the Action Area would be marked on Project plans and in the Action Area with fencing to avoid impacts (MM-10, MM-11). All riparian habitat impacted by the Project would be restored to its prior condition or better upon completion of the Project (MM-16).

5.2.3 Effects Determination

May Affect, Not Likely to Adversely Affect (discountable). Tidewater gobies are not currently present within Honda Creek and have not been detected there since 2001. Minimization measures would limit adverse effects to aquatic habitat in the event of future tidewater goby re-colonization.

5.3 California Red-legged Frog

5.3.1 Direct Effects

California red-legged frogs are present and range within the Action Area from near Honda Bridge upstream to the Coast Road culverts. No significant long term direct effects to California red-legged frog are anticipated to occur from the proposed Project. Short-term direct effects could occur during capture and relocation of frogs, direct mortality from vehicle strikes, and from mortality during causeway and crane pad construction within Honda Creek. Additionally, pile driving and other construction noise could indirectly affect California red-legged frogs. Pile driving equipment would be utilized in the creek bottom for 12 to 14 weeks and would generate significant percussive noise that could alter frog behavior.

To minimize direct effects to California red-legged frogs, temporary exclusion fencing would be placed around all active construction areas (MM-12). A service-approved biological monitor would brief all project personnel on California red-legged frog presence and protocols and be present on site during all construction activities occurring in the riparian area and would stop work and relocate any California red-legged frogs to appropriate habitat outside of the Action Area (MM-13, MM-14), but within the Honda Creek watershed, in compliance with the Declining Amphibian Populations Task Force guidance (refer to MM-13). All trash on site would be contained to reduce the likelihood of attracting predators (MM-15). Pile driving equipment would be utilized in the creek bottom for 12 to 14 weeks and would generate significant percussive noise. Although exclusion, monitoring, and relocation of California red-legged frogs from the Action Area (MM-12, MM-13) would minimize exposure to acoustic effects, percussive noise may directly impact California red-legged frogs within and near the Action Area.

5.3.2 Indirect Effects

Although UPRR's proposed erosion and sediment control measures would minimize the possibility of sediment and pollutants entering Honda Creek, work within riparian habitat during access road, causeway, and crane pad construction could adversely affect water quality and thus affect all life stages of California red-legged frog.

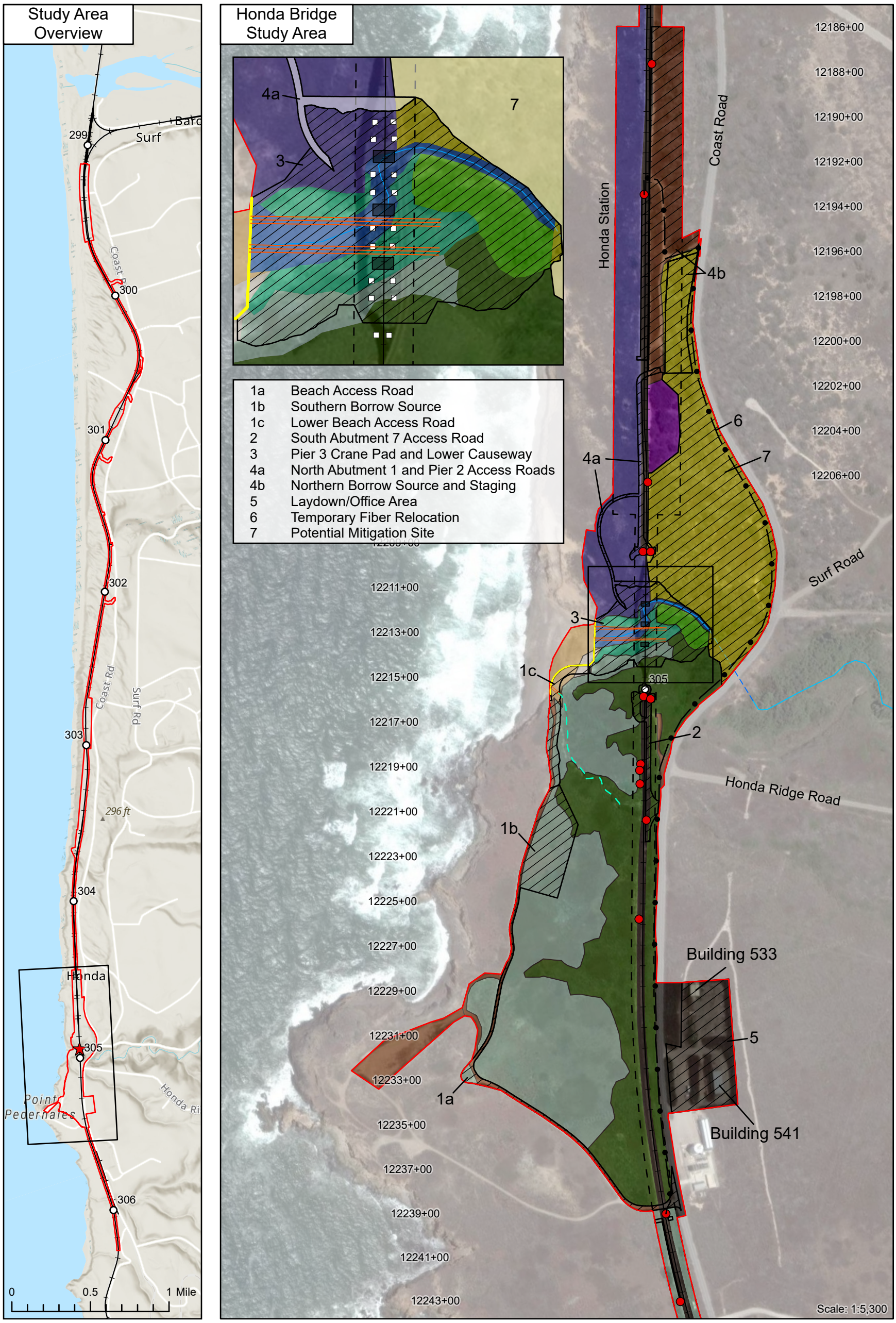
To minimize indirect effects to California red-legged frogs, prior to Project commencement, baseline water quality measurements would be taken, and water quality monitored for the Project's duration (MM-3). Appropriate erosion, sediment, and pollution control measures would be implemented to minimize potential runoff and prevent spills from affecting aquatic habitat (MM-

4 to MM-9). All riparian habitat outside of the Action Area would be marked on Project plans and with fencing in the Action Area to avoid impacts (MM-10, MM-11). Any alterations to California red-legged frog habitat would be designed to minimize impacts to existing habitat and all impacted habitat would be restored to its prior condition or better upon completion of the Project (MM-16).

5.3.3 Effects Determination

May Affect, Likely to Adversely Affect. Although minimization measures would limit effects, the Project may adversely affect California red-legged frogs directly due to incidental mortality and noise impacts, and indirectly due to impacts to water quality, and temporary streamflow alterations.

Figure 7. Biological Resource Impacts



Legend

- Study Area (182 acres)
- Action Area
- UPRR Property
- Proposed Piles
- Railroad Track
- Temporary Fiber Relocation (6)
- Hand Hole Location
- Milepost
- Existing Honda Bridge Pedestals
- Ephemeral Drainage
- Honda Creek
- Culvert
- Pipe
- Sea Wall

Habitats

- Acacia
- Central Coast Arroyo Willow Riparian Forest and Scrub
- Central Coastal Scrub
- Central Coastal Scrub/Iceplant
- Coastal Brackish/ Salt Marsh
- Coastal Strand
- Developed
- Disturbed/ Cleared
- Foredune
- Iceplant
- Nonnative Trees
- Seasonal Open Water

N

0 270 540 Feet

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.61971°W 34.64141°N
Santa Barbara County, California

Study Area Overview
Basemap: World Topographic
Honda Bridge Study Area
Basemap: Google Maps Satellite

ALTHOUSE AND MEADE, INC.
BIOLOGICAL AND ENVIRONMENTAL SERVICES

Map Updated:
March 31, 2022 10:31 AM by SAF

6 AVOIDANCE AND MINIMIZATION MEASURES

The Minimization Measures (MM) below (Sections 6.1 to 6.3) will provide avoidance and protection measures for listed species and their habitat(s) within the Action Area (USFWS 2015, 2018). Additional Minimization Measures (6.4 to 6.5) will be in place to protect other habitats and biological resources within the Action Area.

6.1 Beach Layia Protection and Minimization Measures

MM-1. Potential beach layia habitat within the Action Area will be surveyed by a qualified biologist annually. Prior to any ground disturbing activities known beach layia occurrences will be fenced for avoidance for the duration of the Project. If avoidance is not practicable, topsoil will be salvaged and replaced upon Project completion. Seeding will not occur, but nonnative weed control will be implemented during the five-year restoration monitoring period.

MM-2. All potential beach layia habitat impacted within the Action Area north of Honda Bridge will be restored with salvaged topsoil or a native central dune scrub seed mix upon Project completion.

6.2 Aquatic Species and Habitat Protection and Minimization Measures

The following Minimization Measures are required to prevent erosion and minimize impacts to listed aquatic species and habitat within Honda Creek:

MM-3. Water quality parameters including pH and turbidity during normal flow events will be measured prior to the commencement of the Project to determine baseline condition. Measurements will occur throughout the Project's duration and water quality will be maintained at or above pre-Project levels. Visual water quality assessments will be conducted daily during active work that may affect water quality. During concrete installation, pH will be monitored daily, and/or during a pour if standing water is present in or adjacent to the concrete action area.

MM-4. A contingency plan will be developed for the recovery and salvage of tidewater gobies, California red-legged frogs, and other sensitive wildlife in the event of a local toxic spill or accidental dewatering of their respective habitats.

MM-5. Appropriate best management practices will be utilized at the site to prevent sediment and/or pollution from entering Honda Creek. Erosion control measures will include both temporary and permanent protection, including but not limited to installation of silt fences, straw wattles, erosion control fabrics, and hydroseeding. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented by qualified practitioners.

MM-6. A dewatering plan will be prepared prior to construction and a Conceptual De-Watering Plan is provided in Appendix I (Wadsworth 2021). Wet spoils removed from the drill holes will be contained in above-ground, bermed structures to prevent dirty water from entering the creek. Water will be pumped into a container such as a Baker tank, or equivalent. Water and/or

non-toxic dust palliative may be used for dust control. Captured excess water will be tested for water quality per Regional Water Quality Control Board Region 3 standards. If filtered water quality is at or above Honda Creek water quality, water may be discharged to the creek in a manner that does not increase turbidity in the creek (e.g., through a vegetated filter). Biological monitoring will include additional patrols of banks and isolated pools and turbidity testing in Honda Creek.

MM-7. Hazardous materials will be properly stored and managed in secured areas located outside of the Honda Creek riparian corridor.

MM-8. Mobile equipment will be staged, refueled, repaired, and maintained at least 500 feet outside of the Honda Creek riparian corridor. Large equipment such as cranes will be staged adjacent to the bridge on crane pads, outside of the live stream. Spill containment materials will be placed around all equipment before refueling. Stationary equipment (e.g., cranes) will be outfitted with drip pans and hydrocarbon absorbent pads.

MM-9. If it is necessary to refuel or repair equipment within the riparian corridor, spill containment materials will be placed the equipment and a qualified biologist will be present to document protection of water quality and biological resources.

MM-10. The edge of riparian vegetation and boundaries of the Action Area and work areas will be shown on all construction plans.

MM-11. During construction, riparian vegetation outside of the Action Area will be fenced for avoidance and left undisturbed.

6.3 California Red-legged Frog Protection and Minimization Measures

MM-12. Prior to start of construction activities, UPRR will install ERTEC wildlife exclusion fencing (or equivalent) to exclude California red-legged frogs from the Action Area during construction. These fences could be opened during inactive construction periods to prevent entrapment of frogs and other wildlife.

MM-13. USFWS-approved biologist(s) will be present on site during all construction activities occurring in California red-legged frog habitat. Prior to the start of daily construction activities in the riparian zone, biologist(s) will survey the work sites for California red-legged frogs, checking beneath all parked vehicles and heavy equipment before Project activities commenced. If a California red-legged frog is observed within a designated work area and cannot be avoided, all work will stop until the animal can be relocated by a USFWS-approved biologist or until it has left the work area of its own accord. California red-legged frogs captured during surveys or construction activities will be relocated to the nearest suitable habitat outside of the Action Area but within the Honda Creek watershed and no more than 2 miles from the capture site. California red-legged frogs may only be captured by hand or dip net and transported in buckets separate from other species. When capturing and removing California red-legged frogs from the project area, the USFWS-approved biologist(s) must minimize the amount of time that animals are held in captivity. In addition, California red-legged frogs must be maintained in a manner that will not expose them to temperatures or any

other environmental conditions that could cause injury or undue stress (USFWS 2015). To ensure that diseases are not conveyed between work sites, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will always be followed (DAPTF 1998; Appendix H).

MM-14. Qualified biologists will brief all project personnel prior to their participating in construction activities. At a minimum, the briefing will include a description of the project components and techniques, a description of the listed species occurring in the project area, and the general and specific measures and restrictions to protect the species during implementation of the Project.

MM-15. All trash will be removed from the site daily or secured in a predator-resistant container to reduce the likelihood of attracting potential California red-legged frog predators to the work site.

MM-16. Prior to commencement of construction, UPRR will prepare and implement a Habitat Mitigation and Monitoring Plan (see Appendix H for a conceptual restoration plan). Impacts to California red-legged frog habitat will be mitigated at a 2:1 ratio of creation and enhancement (area of created or enhanced habitat to impacted habitat). Appropriate restoration and enhancement activities will include planting appropriate native species, returning Honda Creek and adjacent wetlands and uplands to pre-project conditions, and/or providing habitat enhancement through the creation of additional habitat along lower Honda Creek.

6.4 Standard Minimization Measures

The following Standard Minimization Measures will be followed to minimize impacts to plants, wildlife, and habitats within and adjacent to the Action Area:

MM-17. All equipment and vehicles (trucks, bulldozers, cranes, etc.) must be cleaned of seeds and/or mud and any skid plates must be removed and cleaned prior to arrival on VSFB. Prior to site activities, all contractors and personnel will be briefed on vehicle cleanliness policies. Upon arrival, all new equipment and vehicles will be inspected for weed seeds and caked mud. Vehicles with weed seeds and/or caked mud will be required to undergo off-site cleaning at a dedicated vehicle washing station. A vehicle checklist will be maintained, and all inspection results will be recorded. Equipment on site will be cleaned of weed seeds frequently, especially wheels, undercarriages, and bumpers.

MM-18. Construction fencing will be placed along the outer edge of the Action Area to protect adjacent habitats from incidental impacts.

MM-19. If practicable, clearing and grubbing will be performed between the dates of 15 August and 14 February. If clearing and grubbing must occur outside of those dates, then nesting bird surveys must be performed within two weeks prior to vegetation disturbance.

MM-20. An environmental monitor will be present during any vegetation disturbance (including but not limited to mowing, trimming, clearing, or grubbing), and any ground disturbing activities (including but not limited to road, causeway, or crane pad construction). The environmental monitor will document compliance with all best practices and environmental

compliance items for the project. The environmental monitor will be qualified to move wildlife from the Action Area as needed (but would only move California red-legged frogs if USFWS-approved).

MM-21. All hazardous materials required to operate and maintain construction equipment will be properly used in accordance with manufacturer's specifications.

MM-22. The contractor will develop and follow an approved spill prevention plan, including procedures to ensure that all equipment is properly maintained and free of leaks and all necessary repairs incorporate proper spill containment.

MM-23. All temporarily disturbed upland areas, including temporary access roads, will be restored at a minimum to their pre-Project condition (see Appendix G for further details and coverage of wetlands/California red-legged frog habitat):

A. Impacted central coastal scrub will be seeded with at least six species (as local material is available) listed in Appendix H and may include seeds collected from additional species in the area.

B. Impacted central dune scrub will be seeded with at least six species (as local material is available) listed in Appendix G and may include seeds collected from additional species in the area.

C. Impacted Acacia and iceplant will be seeded with species listed in Appendix G as determined by soil and nearby native species composition to restore impacted areas to a condition that approximates habitat prior to Acacia and iceplant introduction.

D. Weed control will occur within all restored areas for five years.

6.5 Southwestern Pond Turtle Protection and Minimization Measures

MM-24. Agency-approved biologist(s) will be present on site during all construction activities occurring in southwestern pond turtle habitat. Prior to the start of daily construction activities, the biologist(s) will survey the work area for southwestern pond turtles, checking beneath all parked vehicles and heavy equipment before Project activities commence. If a southwestern pond turtle is observed within a designated work area and cannot be avoided, all work will stop until the animal can be relocated by an agency-approved biologist (MM-25) or until it has left the work area of its own accord.

MM-25. Southwestern pond turtles captured during surveys or construction activities will be relocated to the nearest suitable habitat outside of the Action Area but within the Honda Creek watershed and no more than 2 miles from the capture site. Southwestern pond turtles may only be captured by hand or dip net and transported in buckets separate from other species. When capturing and removing southwestern pond turtles from the project area, the approved biologist(s) must minimize the amount of time that animals are held in captivity. In addition, southwestern pond turtles must be maintained in a manner that will not expose them to temperatures or any other environmental conditions that could cause injury or undue stress. To

reduce the risk of disease transmission, all equipment will be cleaned between use following DAPTF (1998) protocols that are also suitable for aquatic reptiles (Appendix H).

7 INTERRELATED AND INTERDEPENDENT ACTIONS

No interrelated or interdependent actions are anticipated to result from the Project.

8 CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, local, or private actions that are reasonably certain to occur in the Action Area considered in this Biological Assessment. Future federal actions that are unrelated to the Project are not considered in determining the cumulative effects because they are subject to separate consultation requirements pursuant to Section 7 of the ESA (USFWS and NMFS 1998). We are aware of no future state, local, or private actions that are reasonably certain to occur in the Action Area.

9 CONCLUSION

The replacement of Honda Bridge may adversely affect federally listed species. The bridge structure would be replaced in-kind with minimal permanent impacts. New concrete support structures for the bridge would be permanent facilities. UPRR would minimize impacts to Honda Creek by implementing Avoidance and Minimization Measures (Section 6). Coastal salt marsh, freshwater marsh, riparian, open water, foredune, coastal strand, central coastal scrub, and central coastal scrub/iceplant would be temporarily affected by staging and construction activities and temporary road construction in the vicinity of the bridge would be necessary for heavy equipment access. UPRR would return all disturbed areas to pre-project contours and conditions. Below are Effects Determinations for the three federally listed species with potential to occur in the Action Area.

9.1 Beach Layia Effects Determination

May Affect, Likely to Adversely Affect. Beach layia is not known to be present within areas that would be directly impacted by the Project but could occur in these areas. To minimize the chances of direct impacts, known occurrences would be fenced and avoided for the duration of the Project. Potential beach layia habitat within the Action Area would be surveyed annually and fenced and avoided if practicable for the duration of the Project if beach layia were found. Vehicles and equipment would be cleaned prior to arrival in the Action Area to prevent the unintentional introduction of nonnative plant species that could adversely affect beach layia.

9.2 Tidewater Goby Effects Determination

May Affect, Not Likely to Adversely Affect (discountable). Tidewater gobies are not currently present within Honda Creek and have not been detected there since 2001. Minimization measures would be in place to limit adverse effects to aquatic habitat in the event of tidewater goby re-

colonization. The Project is Not Likely to Adversely Affect tidewater goby based on effects being Discountable.

9.3 California Red-legged Frog Effects Determination

May Affect, Likely to Adversely Affect. Minimization measures would be in place to limit direct effects, such as incidental mortality due to ground disturbance and vehicle traffic, and indirect effects, such as impacts to water quality and temporary streamflow alterations. If relocation is required, California red-legged frogs would be captured and maintained in a manner that would not expose them to temperatures or other environmental conditions that could cause injury or undue stress. To prevent the transmission of disease, the Declining Amphibian Populations Task Force fieldwork code of practice would always be followed. While the proposed measures would minimize potential impacts, work within and adjacent to Honda Creek would likely adversely affect California red-legged frogs.

10 REFERENCES[1]

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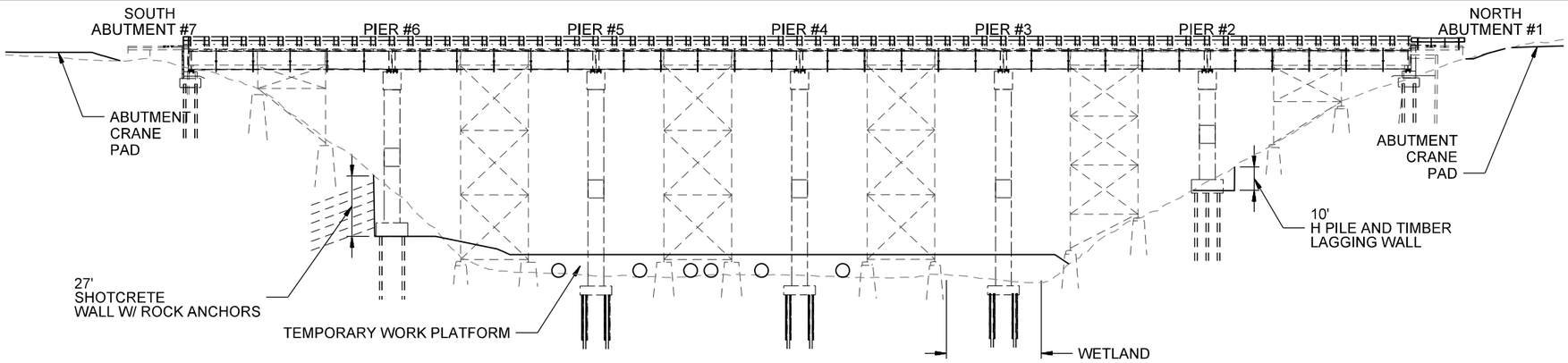
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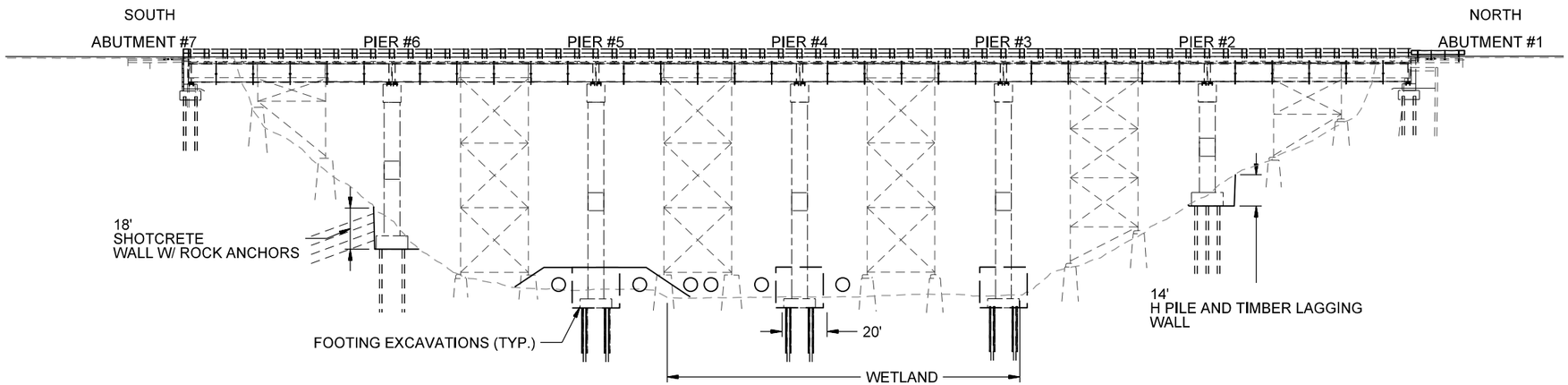
11 APPENDICES

- **Appendix A. Cross-Sections (HDR 1/5/2022)**
- **Appendix B. Botanical Inventory**
- **Appendix C. Wildlife Inventory**
- **Appendix D. Federally Listed Plant Species Reported in the Region**
- **Appendix E. Federally Listed Wildlife Species Reported in the Region**
- **Appendix F. Delineation of Potentially Jurisdictional Wetlands and Waters (Althouse and Meade 2/2022)**
- **Appendix G. Conceptual Habitat Restoration Plan (Althouse and Meade, March 2022**
- **Appendix H. The Declining Amphibian Task Force Fieldwork Code of Practice**
- **Appendix I. Conceptual De-Watering Plan (Wadsworth**

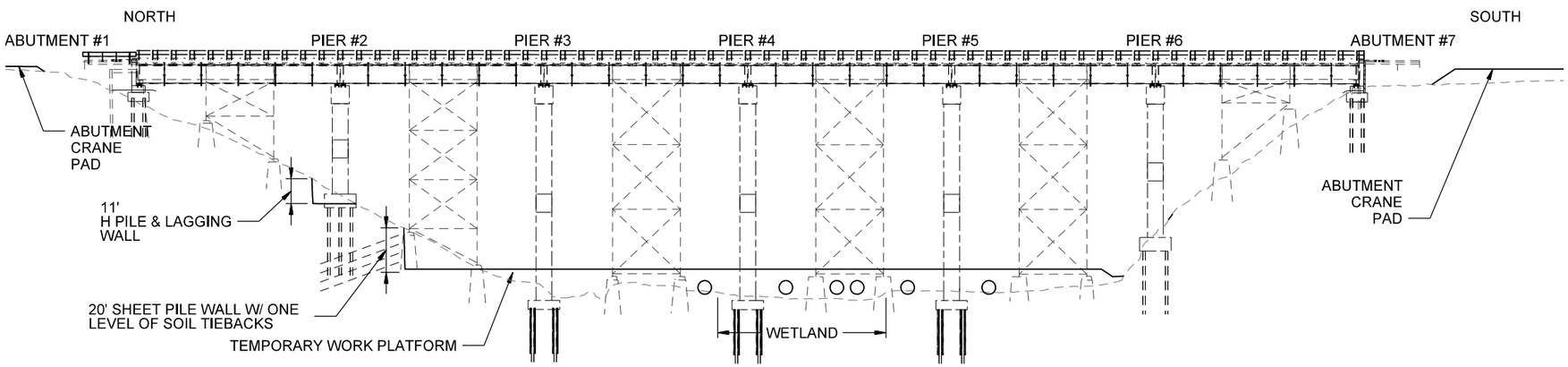
APPENDIX A. CROSS-SECTIONS (HDR 1/5/2022)



SECTION A - LANDSIDE WORK PLAFTORMS @ 30' OFFSET FROM TRACK CL



SECTION B - STRUCTURAL EXCAVATIONS @ TRACK CL



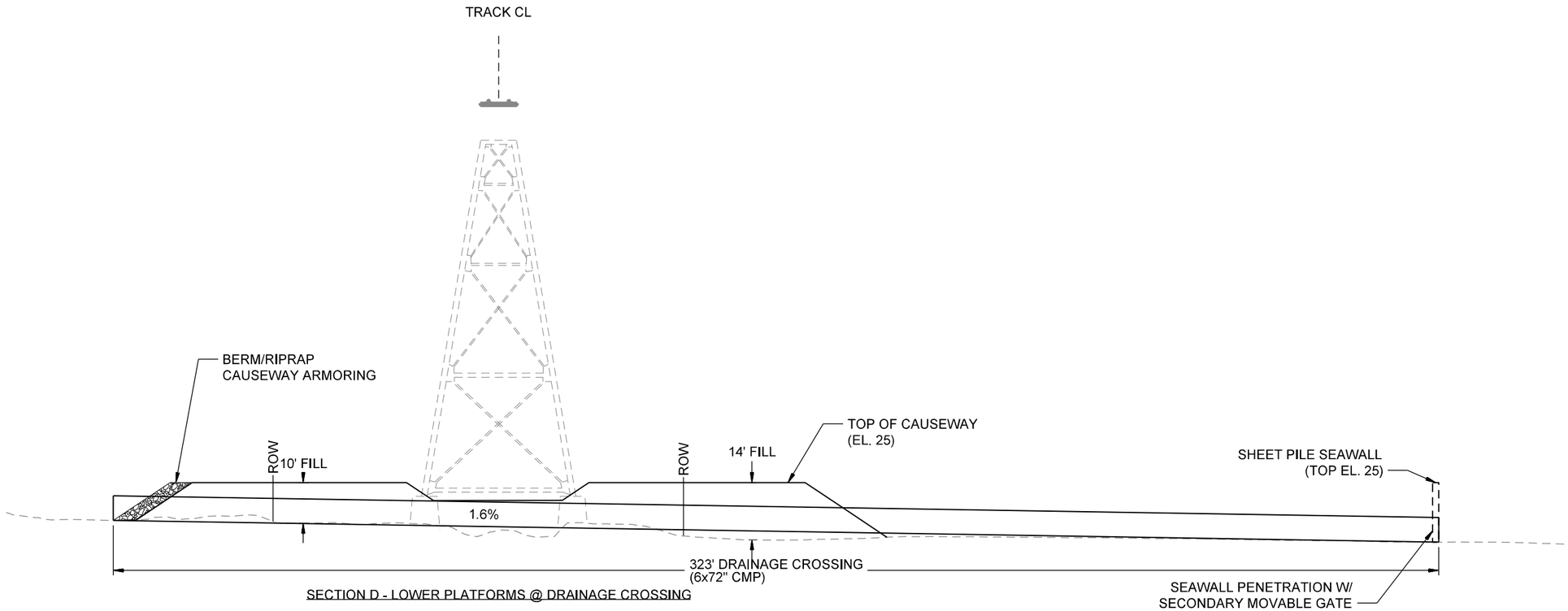
SECTION C - OCEANSIDE WORK PLAFTORMS @ 30' OFFSET FROM TRACK CL

NOTES:
GRADE LINES REPRESENT TOP FINISHED SURFACE.
ALL WORKING SURFACES AND ACCESS ROADS STABILIZED W/ 6" GRAVEL BASE AND GEOTEXTILE SEPARATION LAYER

VANDENBERG SPACE FORCE BASE, CA
SANTA BARBARA COUNTY
BRIDGE 304.89 - SANTA BARBARA SUBDIVISION

CROSS SECTIONS - 1
1" = 60'

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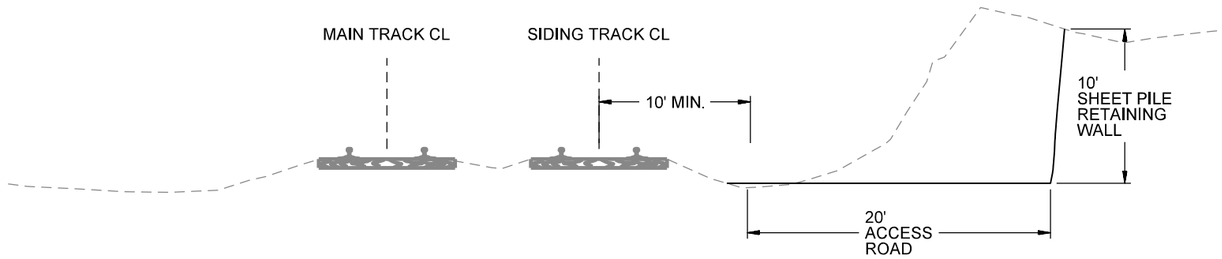
SECTION D - LOWER PLATFORMS @ DRAINAGE CROSSING

NOTES:
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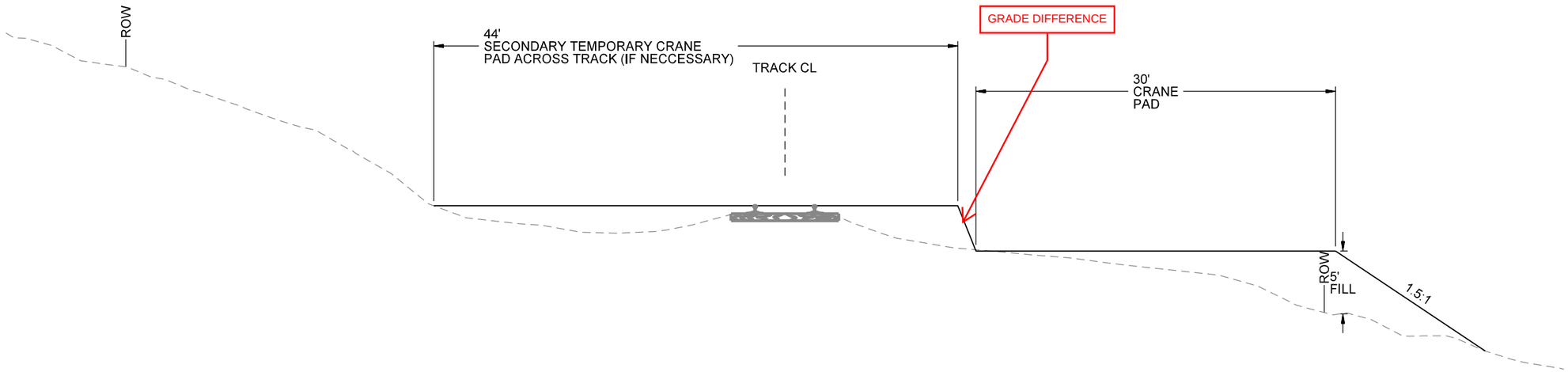
VANDENBERG SPACE FORCE BASE, CA
SANTA BARBARA COUNTY
BRIDGE 304.89 - SANTA BARBARA SUBDIVISION

CROSS SECTIONS - 2
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SECTION G - NORTH ABUTMENT ACCESS ROAD



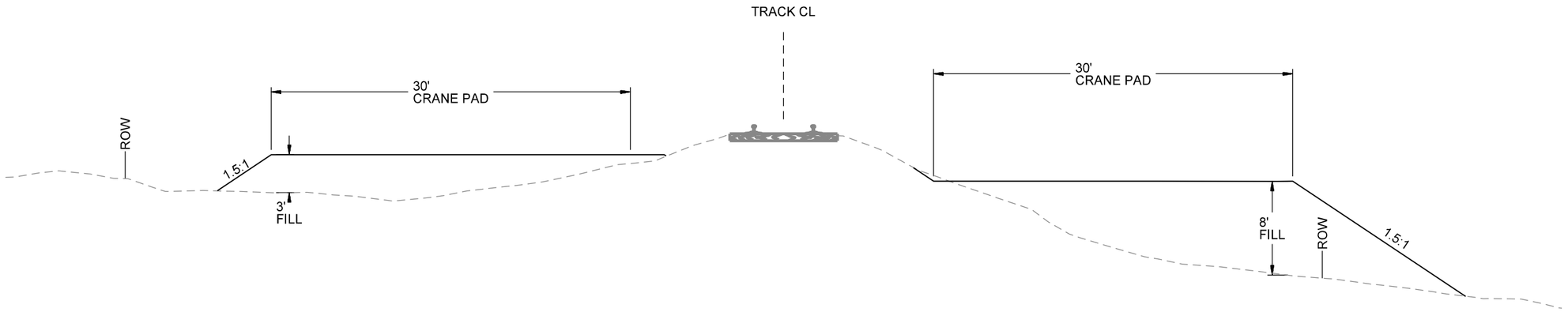
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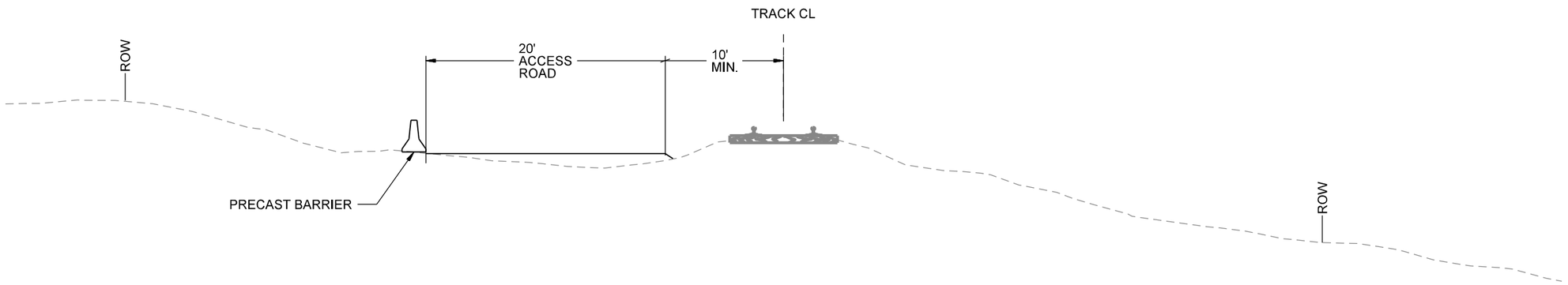
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SANTA BARBARA COUNTY
BRIDGE 304.89 - SANTA BARBARA SUBDIVISION

CROSS SECTIONS - 4
1" = 10'

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SECTION I - SOUTH ABUTMENT CRANE PADS



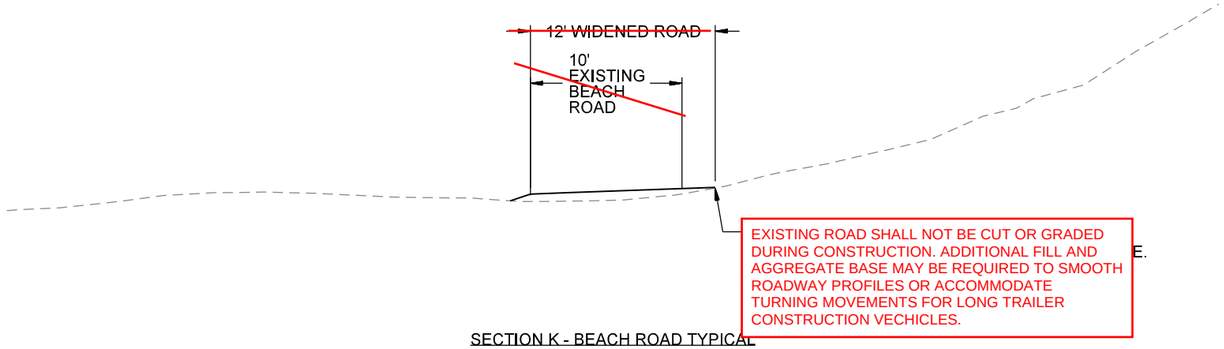
SECTION J - SOUTH ABUTMENT ACCESS ROAD

NOTES:
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ALL WORKING SURFACES AND ACCESS ROADS STABILIZED W/ 6" GRAVEL BASE AND GEOTEXTILE SEPARATION LAYER

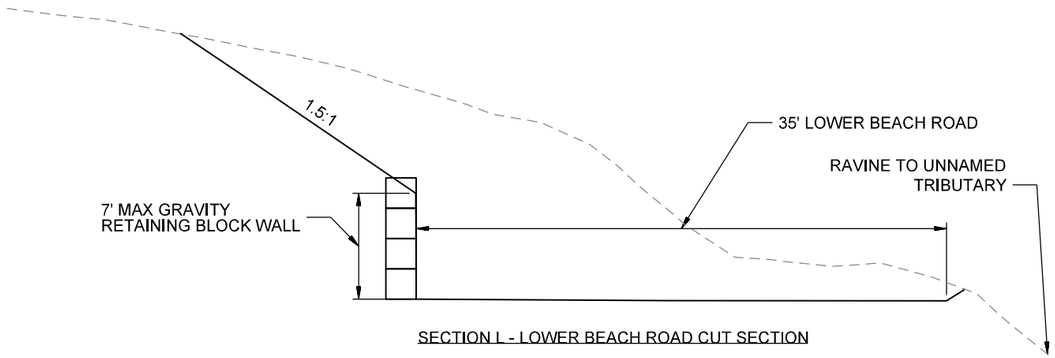
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SANTA BARBARA COUNTY
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1" = 10'

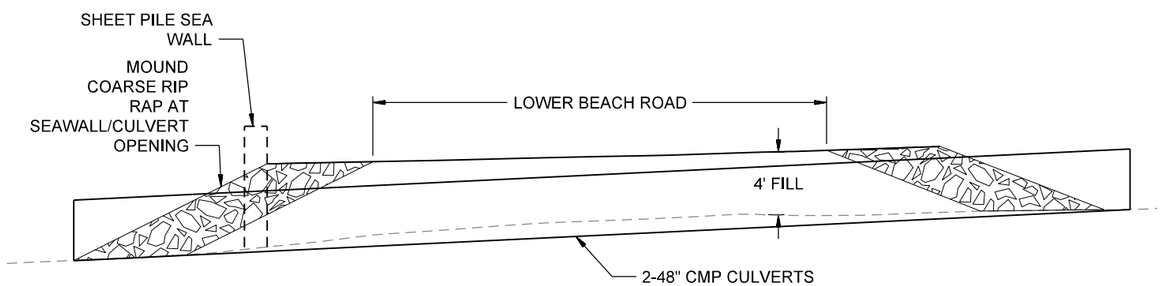
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SECTION K - BEACH ROAD TYPICAL



SECTION L - LOWER BEACH ROAD CUT SECTION



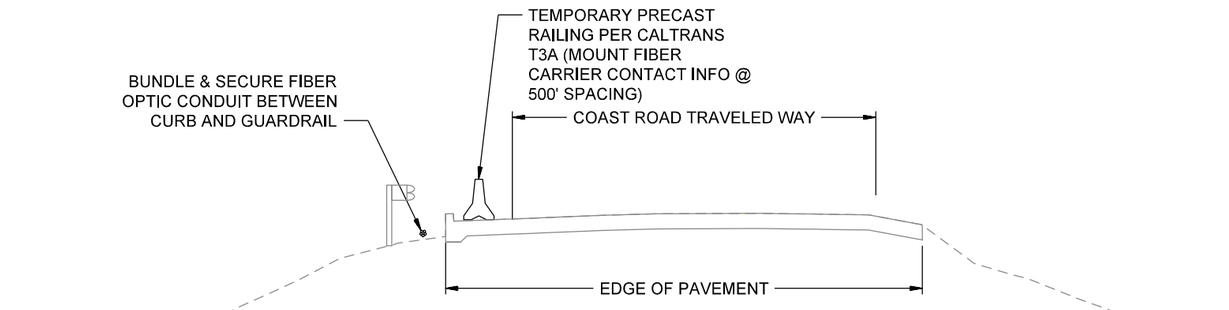
SECTION M - LOWER BEACH ROAD UNNAMED TRIBUTARY CROSSING

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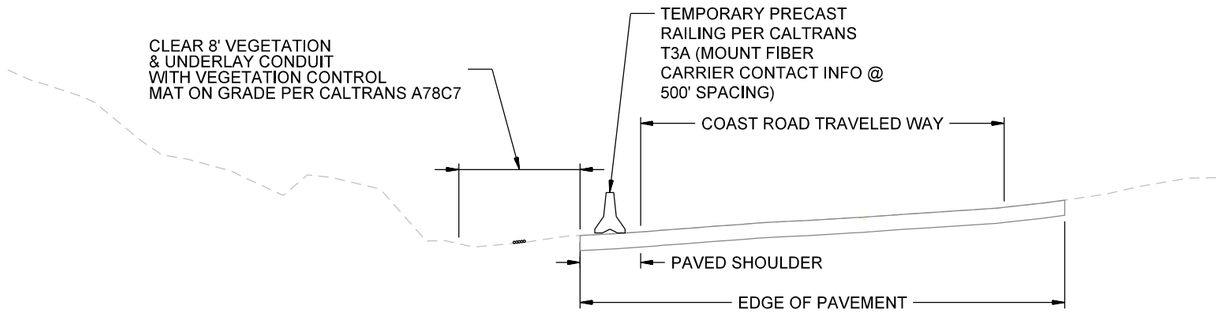
VANDENBERG SPACE FORCE BASE, CA
SANTA BARBARA COUNTY
BRIDGE 304.89 - SANTA BARBARA SUBDIVISION

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1" = 10'

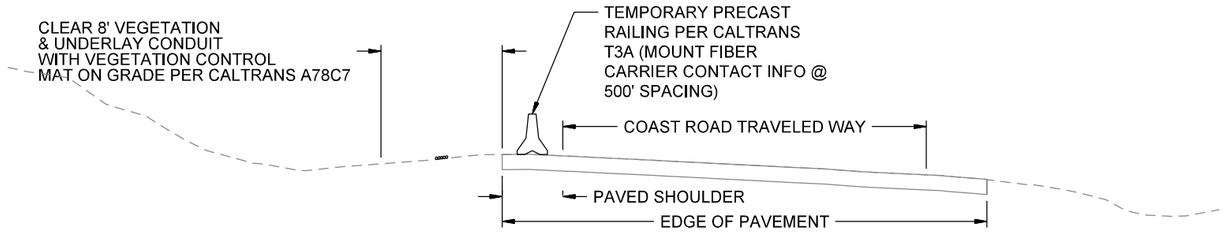
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SECTION N - COAST ROAD TEMPORARY FIBER RELOCATION @ HONDA CANYON



SECTION O - COAST ROAD TEMPORARY FIBER RELOCATION



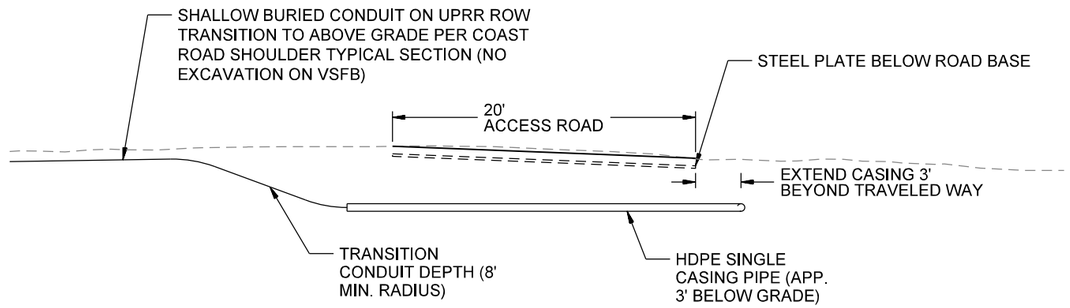
SECTION P - COAST ROAD TEMPORARY FIBER RELOCATION

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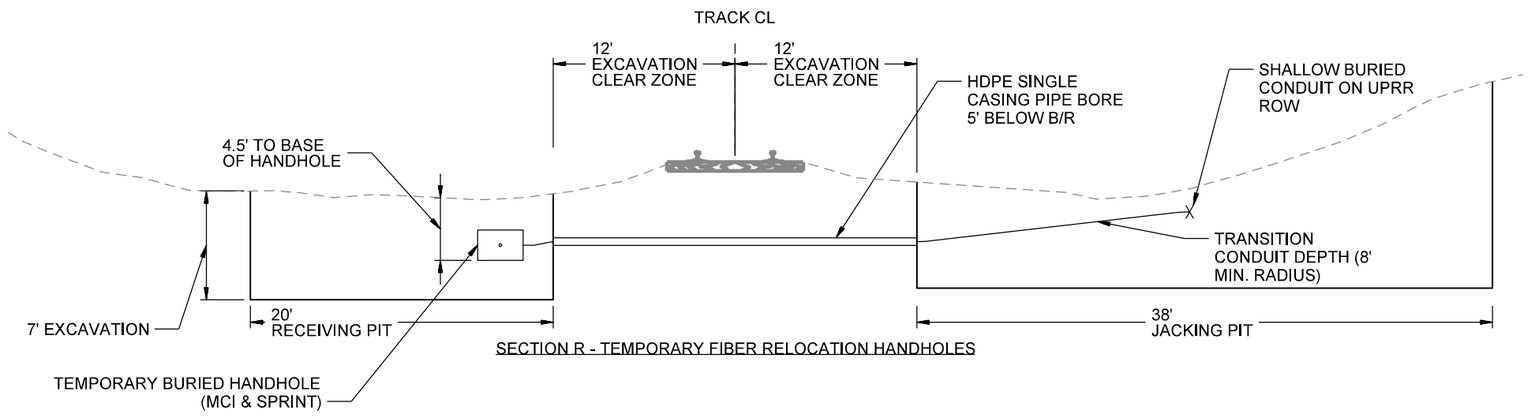
VANDENBERG SPACE FORCE BASE, CA
SANTA BARBARA COUNTY
BRIDGE 304.89 - SANTA BARBARA SUBDIVISION

CROSS SECTIONS - 7
1" = 10'

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SECTION Q - COAST ROAD TEMPORARY FIBER RELOCATION @ DRIVEWAY CROSSINGTYPICAL



SECTION R - TEMPORARY FIBER RELOCATION HANDHOLES

NOTES:
GRADE LINES REPRESENT TOP FINISHED SURFACE.
ALL WORKING SURFACES AND ACCESS ROADS STABILIZED W/ 6" GRAVEL BASE AND GEOTEXTILE SEPARATION LAYER

VANDENBERG SPACE FORCE BASE, CA
SANTA BARBARA COUNTY
BRIDGE 304.89 - SANTA BARBARA SUBDIVISION

CROSS SECTIONS - 8
1" = 10'

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APPENDIX B. BOTANICAL INVENTORY

APPENDIX B. BOTANICAL INVENTORY

Botanical surveys conducted between May 2018 and July 2021 identified 219 vascular plant taxa in the Study Area, of which 144 (66%) are native and 75 (34%) are introduced. Special status plant taxa in the Study Area include ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*), Nuttall''s milkvetch (*Astragalus nuttallii* var. *nuttallii*), suffrutescent wallflower (*Erysimum suffrutescens*), *California* spineflower (*Mucronea californica*), surf thistle (*Cirsium rhothophilum*), Blochman's leafy daisy (*Erigeron blochmaniae*), beach layia (*Layia carnosa*), dunedelion (*Malacothrix incana*), and Blochman's ragwort (*Senecio blochmaniae*). Botanical nomenclature follows the Jepson eFlora (Jepson Flora Project 2021).

Scientific Name	Common Name	Special Status	Origin
Ferns – 2 Species			
Azolla filiculoides	Mosquito fern	None	Native
Equisetum telmateia ssp. *braunii*	Giant horsetail	None	Native
Trees – 7 Species			
Acacia longifolia	Long-leaved acacia	None	Introduced
Eucalyptus globulus	Blue-gum	None	Introduced
Eucalyptus tereticornis	Forest red gum	None	Introduced
Hesperocyparis macrocarpa	Monterey cypress	None	Introduced
Myoporum laetum	Myoporum	None	Introduced
Populus trichocarpa	Black cottonwood	None	Native
Salix lasiolepis	Arroyo willow	None	Native
Shrubs – 27 Species			
Albizia lophantha	Stink bean	None	Introduced
Artemisia californica	Coastal sagebrush	None	Native
Atriplex lentiformis	Quailbush	None	Native
Baccharis pilularis ssp. *consanguinea*	Coyote brush	None	Native
Ceanothus thyrsiflorus var. *thyrsiflorus*	Blue blossom	None	Native
Diplacus aurantiacus	Sticky monkeyflower	None	Native
Encelia californica	California brittlebush	None	Native
Ericameria ericoides	Mock heather	None	Native
Eriogonum fasciculatum	California buckwheat	None	Native
Eriogonum parvifolium	Coastal buckwheat	None	Native

Scientific Name	Common Name	Special Status	Origin
Eriophyllum confertiflorum	Golden yarrow	None	Native
Frangula californica	Coffeeberry	None	Native
Heteromeles arbutifolia	Toyon	None	Native
Isocoma menziesii var. *sedoides*	White flowered dune goldenbush	None	Native
Isocoma menziesii var. *vernonioides*	Green leaved dune goldenbush	None	Native
Leptosyne gigantea	Giant coreopsis	None	Native
Lonicera involucrata var. *ledebourii*	Coast twinberry	None	Native
Lupinus arboreus	Bush lupine	None	Native
Lupinus chamissonis	Silver bush lupine	None	Native
Rhus integrifolia	Lemonade berry	None	Native
Ribes malvaceum var. *malvaceum*	Chaparral currant	None	Native
Rubus ursinus	California blackberry	None	Native
Salvia mellifera	Black sage	None	Native
Sambucus nigra ssp. *caerulea*	Blue elderberry	None	Native
Senecio blochmaniae	Blochman's ragwort	-/- CRPR 4.2 G3/S3	Native
Solanum umbelliferum	Blue-witch	None	Native
Toxicodendron diversilobum	Poison oak	None	Native
Forbs – 163 Species			
Abronia latifolia	Yellow sand verbena	None	Native
Abronia umbellata	Beach sand verbena	None	Native
Achillea millefolium	Yarrow	None	Native
Acmispon glaber var. *glaber*	Deerweed	None	Native
Acmispon heermannii var. *orbicularis*	Heermann's lotus	None	Native
Acmispon junceus	Rush lotus	None	Native
Acmispon maritimus var. *maritimus*	Coastal lotus	None	Native
Ambrosia chamissonis	Beach bursage	None	Native
Amsinckia spectabilis var. *spectabilis*	Seaside fiddleneck	None	Native

Scientific Name	Common Name	Special Status	Origin
Apiastrum angustifolium	Mock parsley	None	Native
Apium graveolens	Celery	None	Introduced
Artemisia douglasiana	Mugwort	None	Native
Astragalus nuttallii var. *nuttallii*	Nuttall''s milkvetch	-/- CRPR 4.2 G4T4/S4	Native
Atriplex leucophylla	Beach saltbush	None	Native
Atriplex prostrata	Spearscale	None	Introduced
Atriplex prostrata	Spearscale	None	Introduced
Atriplex semibaccata	Australian saltbush	None	Introduced
Baccharis glutinosa	Salt marsh baccharis	None	Native
Bolboschoenus maritimus ssp. *paludosus*	Pacific bulrush	None	Native
Brassica nigra	Black mustard	None	Introduced
Cakile maritima	European searocket	None	Introduced
Calystegia macrostegia ssp. *cyclostegia*	Morning glory	None	Native
Camissoniopsis cheiranthifolia ssp. *cheiranthifolia*	Beach evening-primrose	None	Native
Camissoniopsis micrantha	Miniature suncup	None	Native
Cardionema ramosissimum	Sand mat	None	Native
Carduus pycnocephalus ssp. *pycnocephalus*	Italian thistle	None	Introduced
Carpobrotus chilensis	Sea fig	None	Introduced
Carpobrotus edulis	Freeway iceplant	None	Introduced
Centaurea melitensis	Tocolote	None	Introduced
Chenopodium album	Lamb's-quarters	None	Introduced
Chenopodium californicum	Pigweed	None	Native
Chenopodium murale	Pigweed	None	Introduced
Chorizanthe angustifolia	Narrow leaf spineflower	None	Native
Cirsium rhothophilum	Surf thistle	-/CT CRPR 1B.2 G1/S1	Native
Cirsium vulgare	Bull thistle	None	Introduced
Claytonia perfoliata	Miner's lettuce	None	Native

Scientific Name	Common Name	Special Status	Origin
Clematis ligusticifolia	Virgin's bower	None	Native
Conicosia pugioniformis	Narrow-leaved ice plant	None	Introduced
Conium maculatum	Poison hemlock	None	Introduced
Corethrogyne filaginifolia	California aster	None	Native
Cotula coronopifolia	Brass buttons	None	Introduced
Crassula connata	Pygmyweed	None	Native
Croton californicus	California croton	None	Native
Cryptantha clevelandii var. *florosa*	Coastal cryptantha	None	Native
Cryptantha leiocarpa	Popcorn flower	None	Native
Cryptantha micromeres	Small flowered cryptantha	None	Native
Cuscuta sp.	Dodder species	None	Native
Daucus pusillus	Rattlesnake weed	None	Native
Deinandra increscens ssp. *increscens*	Tarweed	None	Native
Descurainia pinnata	Western tansy mustard	None	Native
Dipsacus fullonum	Wild teasel	None	Introduced
Dudleya caespitosa	Sand lettuce	None	Native
Epilobium ciliatum	Willow herb	None	Native
Erigeron blochmaniae	Blochman's leafy daisy	-/- CRPR 1B.2 G2/S2	Native
Erigeron bonariensis	Asthma weed	None	Introduced
Erigeron canadensis	Common horseweed	None	Native
Eriophyllum multicaule	Many stemmed woolly sunflower	None	Native
Eriophyllum staechadifolium	Coastal golden yarrow	None	Native
Erodium botrys	Longbeak storksbill	None	Introduced
Erodium cicutarium	Redstem filaree	None	Introduced
Erodium moschatum	Filaree	None	Introduced
Erysimum suffrutescens	Suffrutescent wallflower	-/- CRPR 4.2 G3/S3	Native
Erythranthe grandis	Magnificent seep monkey flower	None	Native

Scientific Name	Common Name	Special Status	Origin
Erythranthe guttata	Yellow monkey flower	None	Native
Eschscholzia californica	California poppy	None	Native
Eucrypta chrysanthemifolia	Spotted eucrypta	None	Native
Euphorbia crenulata	Chinesecaps	None	Native
Extriplex californica	California orach	None	Native
Foeniculum vulgare	Fennel	None	Introduced
Frankenia salina	Alkali heath	None	Native
Galium aparine	Goose grass	None	Native
Gamochaeta ustulata	Featherweed	None	Native
Geranium dissectum	Geranium	None	Introduced
Helenium puberulum	Sneezeweed	None	Native
Helianthus annuus	Common sunflower	None	Native
Heliotropium curassavicum var. *oculatum*	Seaside heliotrope	None	Native
Helminthotheca echioides	Bristly ox-tongue	None	Introduced
Hesperocnide tenella	Western stinging nettle	None	Native
Heterotheca grandiflora	Telegraph weed	None	Native
Hirschfeldia incana	Wild mustard	None	Introduced
Hoita macrostachya	Leather root	None	Native
Hypochaeris glabra	Smooth cat's ear	None	Introduced
Isolepis cernua	Low bulrush	None	Native
Jaumea carnosa	Fleshy jaumea	None	Native
Juncus textilis	Basket rush	None	Native
Juncus xiphioides	Iris-leaved rush	None	Native
Lasthenia gracilis	Common goldfields	None	Native
Layia carnosa	Beach layia	FE/CE CRPR 1B.1 G2/S2	Native
Lepidium latifolium	Perennial pepperweed	None	Introduced
Lilium humboldtii ssp. *ocellatum*	Humboldt lily	-/- CRPR 4.2 G4T4?/S4?	Native
Lobularia maritima	Sweet alyssum	None	Introduced
Ludwigia sp.	Water primrose species	None	Introduced

Scientific Name	Common Name	Special Status	Origin
Lupinus succulentus	Arroyo lupine	None	Native
Lysimachia arvensis	Scarlet pimpernel	None	Introduced
Malacothrix incana	Dandelion	-/- CRPR 4.3 G3G4/S3S4	Native
Malva parviflora	Cheeseweed	None	Introduced
Marah fabacea	California man-root	None	Native
Medicago polymorpha	California burclover	None	Introduced
Melilotus albus	White sweet clover	None	Introduced
Melilotus indicus	Annual sweetclover	None	Introduced
Mesembryanthemum crystallinum	Crystalline ice plant	None	Introduced
Mesembryanthemum nodiflorum	Small flowered iceplant	None	Introduced
Monardella undulata	Curly leaved monardella	None	Native
Monardella villosa ssp. *obispoensis*	Coyote mint	None	Native
Mucronea californica	California spineflower	-/- CRPR 4.2 G3/S3	Native
Nasturtium officinale	Common watercress	None	Native
Nemophila menziesii	Baby blue-eyes	None	Native
Nuttallanthus texanus	Blue toadflax	None	Native
Oxalis pes-caprae	Bermuda buttercup	None	Introduced
Persicaria sp.	Smartweed sp.	None	Unknown
Phacelia distans	Phacelia	None	Native
Phacelia grandiflora	Giant flowered phacelia	None	Native
Phacelia ramosissima	Branching phacelia	None	Native
Phacelia viscida	Sticky phacelia	None	Native
Pholistoma auritum	Fiesta flower	None	Native
Plantago coronopus	Cut leaf plantain	None	Introduced
Plantago erecta	California plantain	None	Native
Plantago major	Broad-leaved plantain	None	Introduced
Plantago maritima	Seaside plantain	None	Native

Scientific Name	Common Name	Special Status	Origin
Polycarpon tetraphyllum var. *tetraphyllum*	Four leaved allseed	None	Introduced
Polygonum aviculare ssp. *depressum*	Common knotweed	None	Introduced
Potentilla anserina ssp. *pacifica*	Coastal silverleaf	None	Native
Pseudognaphalium biolettii	Two-color rabbit-tobacco	None	Native
Pseudognaphalium californicum	California everlasting	None	Native
Pseudognaphalium luteoalbum	Jersey cudweed	None	Introduced
Pseudognaphalium microcephalum	Wright's cudweed	None	Native
Pseudognaphalium ramosissimum	Pink cudwed	None	Native
Pseudognaphlium stramineum	Cotton batting plant	None	Native
Pterostegia drymarioides	Pterostegia	None	Native
Raphanus sativus	Wild radish	None	Introduced
Rorippa curvisiliqua	Water cress	None	Native
Rumex crispus	Curly dock	None	Introduced
Rumex fueginus	Golden dock	None	Native
Rumex transitorius	Willow dock	None	Native
Salicornia pacifica	Pacific swampfire	None	Native
Salsola tragus	Russian thistle	None	Introduced
Salvia spathacea	Hummingbird sage	None	Native
Sanicula crassicaulis	Sanicle	None	Native
Schoenoplectus pungens var. *longispicatus*	Common threesquare	None	Native
Scirpus microcarpus	Panicled rush	None	Native
Scrophularia californica	California figwort	None	Native
Senecio californicus	California butterweed	None	Native
Senecio vulgaris	Common groundsel	None	Introduced
Silybum marianum	Milk thistle	None	Introduced
Solanum douglasii	Nightshade	None	Native
Solanum xanti	Nightshade	None	Native

Scientific Name	Common Name	Special Status	Origin
Solidago spathulata	Dune goldenrod	None	Native
Sonchus asper ssp. *asper*	Prickly sow-thistle	None	Introduced
Sonchus oleraceus	Common sow thistle	None	Introduced
Spergularia bocconi	Boccone's sand spurry	None	Introduced
Spergularia macrotheca	Sticky sand spurry	None	Native
Spergularia rubra	Red sand spurrey	None	Introduced
Stachys bullata	Hedge nettle	None	Native
Stellaria media	Chickweed	None	Introduced
Symphyotrichum chilense	Pacific aster	None	Native
Tetragonia tetragonoides	New zealand spinach	None	Introduced
Thalictrum fendleri	Meadow rue	None	Native
Trifolium willdenovii	Tomcat clover	None	Native
Urtica dioica ssp. *holosericea*	Stinging nettle	None	Native
Venegasia carpesioides	Canyon sunflower	None	Native
Verbena lasiostachys	Verbena	None	Native
Veronica anagallis-aquatica	Water speedwell	None	Introduced
Xanthium strumarium	Cocklebur	None	Native
Grasses – 20 Species			
Ammophila arenaria	European beachgrass	None	Introduced
Arundo donax	Giant reed	None	Introduced
Avena fatua	Wild oat	None	Introduced
Bromus diandrus	Ripgut brome	None	Introduced
Bromus hordeaceus	Soft chess brome	None	Introduced
Bromus madritensis ssp. *rubens*	Red top brome	None	Introduced
Cortaderia jubata	Andean pampas grass	None	Introduced
Cortaderia selloana	Pampas grass	None	Introduced
Distichlis spicata	Saltgrass	None	Native
Ehrharta calycina	Veldt grass	None	Introduced
Elymus condensatus	Giant wild rye	None	Native
Festuca myuros	Rattail sixweeks grass	None	Introduced
Festuca octoflora	Sixweeks grass	None	Native
Hordeum murinum	Foxtail barley	None	Introduced

Scientific Name	Common Name	Special Status	Origin
Parapholis incurva	Sickle grass	None	Introduced
Pennisetum clandestinum	Kikuyu grass	None	Introduced
Pennisetum villosum	Feathertop	None	Introduced
Poa douglasii	Sand dune blue grass	None	Native
Polypogon monspeliensis	Annual beardgrass	None	Introduced
Polypogon viridis	Water beard grass	None	Introduced

APPENDIX C. WILDLIFE INVENTORY

APPENDIX C. WILDLIFE INVENTORY

Wildlife surveys conducted between May 2018 and July 2021 identified two amphibians, four reptiles, 58 birds, and five mammals within the Study Area. No reptile-specific surveys were conducted, and amphibian surveys were limited to California red-legged frog surveys. Small mammal trapping was not conducted. A two-striped garter snake (*Thamnophis hammondii*, SSC) was observed hunting tadpoles in a small pool at the eastern footing of bent 9 on July 9, 2021. California red-legged frog (*Rana draytonii*, FT/SSC) egg masses, tadpoles, and adults were observed in Honda Creek during protocol and incidental surveys. Approximately 750 meters east of the Honda Bridge is a known Peregrine Falcon (*Falco peregrinus*) nest site (aerie) and Peregrine Falcons have been observed foraging over the Action Area.

Scientific Name	Common Name	Special Status	Habitat Type
Amphibians – 2 Species			
Pseudacris hypochondriaca ssp. *hypochondriaca*	Baja California Treefrog	None	Many habitats near water
Rana draytonii	California Red-legged Frog	FT, SSC	Streams, creeks, and ponds
Reptiles – 4 Species			
Elgaria multicarinata ssp. *webbii*	San Diego Alligator Lizard	None	Riparian, chaparral and woodlandsVariety of habitats
Pituophis catenifer ssp. *annectens*	San Diego Gopher Snake	None	Woodland, grassland, rural
Sceloporus occidentalis ssp. *bocourtii*	Coast Range Fence Lizard	None	Wide range; variety of habitats
Thamnophis hammondii	Two-striped Garter Snake	SSC	Rocky streams, ponds, wetlands.
Birds – 58 Species			
Anthus rubescens	American Pipit	None	Fields, beaches, etc.
Aphelocoma californica	California Scrub-jay	None	Oak, riparian woodlands
Ardea herodias	Great Blue Heron	SA (rookery sites)	Water habitats, grasslands
Bubo virginianus	Great Horned Owl	None	Woodland, grassland
Buteo jamaicensis	Red-tailed Hawk	None	Open, semi-open country
Calidris alba	Sanderling	None	Coastal shorelines and mudflats
Calidris mauri	Western Sandpiper	None	Shorelines and mudflats
Callipepla californica	California Quail	None	Shrubby habitats
Calypte anna	Anna's Hummingbird	None	Many habitats

Scientific Name	Common Name	Special Status	Habitat Type
Cathartes aura	Turkey Vulture	None	Open country
Catharus guttatus	Hermit Thrush	None	Woodland and brush
Catharus ustulatus	Swainson's Thrush	None	Mixed woodlands
Cepphus columba	Pigeon Guillemot	None	Seacliffs, open ocean
Chamaea fasciata	Wrentit	None	Riparian, chaparral
Colaptes auratus	Northern Flicker	None	Woodlands
Contopus sordidulus	Western Wood Pewee	None	Riparian woodlands
Corvus corax	Common Raven	None	Riparian, chaparral and woodlandsVariety of habitats
Empidonax difficilis	Pacific-slope Flycatcher	None	Riparian, oak woodlands
Eremophila alpestris ssp. *actia*	California Horned Lark	SA (nesting)	Grassland, oak savanna
Falco peregrinus ssp. *anatum*	American Peregrine Falcon	FP	Open country, nests on cliffs
Falco sparverius	American Kestrel	None	Open, semi-open country
Geothlypis trichas	Common Yellowthroat	None	Marshes, streamsides
Haematopus bachmani	Black Oystercatcher	None	Rocky seashores
Haemorhous mexicanus	House Finch	None	Riparian, grasslands, chaparral, woodlands, urban
Larus californicus	California Gull	SA (nesting colonies)	Beach, urban areas
Larus occidentalis	Western Gull	None	Beach, urban areas
Melanitta americana	Black Scoter	None	Coastal saltwater
Melanitta perspicillata	Surf Scoter	None	Coastal saltwater
Melospiza lincolnii	Lincoln's sparrow	None	Fields, forest edges, and other areas with thickets
Melospiza melodia	Song Sparrow	None	Oak, riparian woodland
Melozone crissalis	California Towhee	None	Chaparral scrub, shrubby urban areas
Numenius americanus	Long-billed Curlew	SA (nesting)	Winters in meadows, fields. Nests in northeast U.S. and Great Plains.
Numenius phaeopus	Whimbrel	None	Beaches
Oreothlypis celata	Orange-crowned warbler	None	Oak and riparian woodlands

Scientific Name	Common Name	Special Status	Habitat Type
Pelicanus occidentalis ssp. *californicus*	California Brown Pelican	FP (nesting colonies and communal roosts)	Coastal areas near the ocean
Phalacrocorax auritus	Double-crested Cormorant	SA (nesting colonies)	Ponds, lakes, lagoons
Phalacrocorax penicillatus	Brandt's Cormorant	None	Coastal areas near and in the ocean
Picoides nuttallii	Nuttall's Woodpecker	None	Oak, riparian woodlands
Pipilo maculatus	Spotted Towhee	None	Dense brushy areas
Psaltriparus minimus	Bushtit	None	Woodlands, chaparral
Regulus calendula	Ruby-crowned Kinglet	None	Oak, riparian woodlands
Salpinctes obsoletus	Rock Wren	None	Rocky habitats
Sayornis nigricans	Black Phoebe	None	Near water in natural and urban settings
Sayornis saya	Say’s Phoebe	None	Open country, grassland
Setophaga coronata	Yellow-rumped Warbler	None	Coniferous and mixed woodland (breeding); shrubby areas and parks (winter)
Setophaga coronata	Yellow-rumped Warbler	None	Coniferous and mixed woodland (breeding); shrubby areas and parks (winter)
Sialia mexicana	Western Bluebird	None	Woodland near open areas
Spinus lawrencei	Lawrence's Goldfinch	SA (nesting)	Oak woodlands, savanna
Spinus pinus	Pine Siskin	None	Coniferous and mixed woodland (breeding);diverse wooded areas and parks (winter)
Spinus psaltria	Lesser Goldfinch	None	Riparian, oak woodlands
Streptopelia decaocto	Eurasian Collared Dove	None	Urban areas
Sturnella neglecta	Western Meadowlark	None	Open habitats, grasslands
Tachycineta bicolor	Tree Swallow	None	Oak, riparian woodlands, open areas near water
Thryomanes bewickii	Bewick’s Wren	None	Riparian woodland, scrub
Toxostoma redivivum	California Thrasher	None	Chaparral, coastal scrub
Troglodytes aedon	House Wren	None	Shrubby areas
Wilsonia pusilla	Wilson's Warbler	None	Oak, riparian woodlands

Scientific Name	Common Name	Special Status	Habitat Type
Zonotrichia leucophrys	White-crowned Sparrow	None	Oak, riparian woodlandsOpen or shrubby habitats, meadows, forest edges
Mammals – 5 Species			
Canis latrans	Coyote	None	Open woodlands, brushy areas, wide ranging.
Neotoma macrotis	Big-eared Woodrat	None	Wooded habitats
Odocoileus hemionus	Mule Deer	None	Many habitats
Otospermophilus beecheyi	California Ground Squirrel	None	Grasslands
Thomomys bottae	Valley Pocket Gopher	None	Variety of habitats

APPENDIX D. FEDERALLY LISTED PLANT SPECIES REPORTED IN THE REGION

APPENDIX D. FEDERALLY LISTED PLANT SPECIES REPORTED IN THE REGION

	Scientific Name	Common Name	Federal/State Status Global/State Rank CA Rare Plant Rank	Blooming Period	Habitat Preference	Potential to Occur	Detected within Action Area?	Effect of Proposed Action
1.	***Arenaria paludicola*****	Marsh Sandwort	FE/CE G1/S1 1B.1	May-Aug	Boggy meadows, marshes; <300 m. s CCo (Nipomo Mesa, SLO County, Santa Ana River, SCo).	No Potential. Closest location in Pismo Area (Oso Flaco Lake\Black Lake Canyon area). Discussed in the USFWS Recovery Plan Amendment (saved to file), but CNDDB does not have this species in Santa Barbara Co.	No	No Effect
2.	***Chloropyron maritimum* ssp. *maritimum*****	Salt Marsh Bird's-Beak	FE/CE G4?T1/S1 1B.2	May-Nov	Marshes and swamps, coastal dunes, limited to the higher zones of salt marsh habitat 0-10 m.	No Potential. Marginal habitat within Action Area and no occurrences known within VSFB property.	No	No Effect
3.	***Cirsium scariosum* var. *loncholepis****	La Graciosa Thistle	FE/CT G5T1/S1 1B.1	May-Aug	Marshes, dune wetlands; <50m. s CCo (sw San Luis Obispo, nw Santa Barbara counties).	No Potential. Action Area habitat may be appropriate; however, closest occurrence is historical (from 1958) approximately 4.5 miles northeast.	No	No Effect
4.	***Deinandra increscens* ssp. *villosa****	Gaviota Tarplant	FE/CE G4G5T2/S2 1B.1	May-Oct	Grassland and coastal scrub ecotone on coastal terraces from Point Sal south to vicinity of Goleta.	**Low**. The nearest occurrences are on North VSFB and near Sudden Peak.	No	No Effect

	Scientific Name	Common Name	Federal/State Status Global/State Rank CA Rare Plant Rank	Blooming Period	Habitat Preference	Potential to Occur	Detected within Action Area?	Effect of Proposed Action
5.	***Diplacus vandenbergensis****	Vandenberg Monkeyflower	FE/- G1/S1 1B.1	Apr-Jun	Sandy, often disturbed areas, in cismontane woodland and chaparral on the Burton Mesa, Lompoc; 75-120 m.	No Potential. Action Area is outside the species' range.	No	No Effect
6.	***Eriodictyon capitatum****	Lompoc Yerba Santa	FE/CR G2/S2 1B.2	May-Sep	Sandy soils on terraces of closed-cone coniferous forest or chaparral.	No Potential. Suitable habitat is not present within the Study Area. Nearest occurrence is located north of the Santa Ynez River.	No	No Effect
7.	***Layia carnosa****	Beach Layia	FE/CE G2/S2 1B.1	Mar-Jul	On sparsely vegetated, semi-stabilized dunes, usually behind foredunes; 0-75 m. n NCo, CCo.	**High**. Although this species was not observed during the 2018 or 2021 surveys, it is reported within and immediately north of the Action Area (CNDDB#1 and #28).	No	Likely to Adversely Affect
8.	***Nasturtium gambelii****	Gambel's Watercress	FE/CT G1/S1 1B.1	Apr-Oct	Marshes, stream banks, lake margins; <1250 m. s CCo, SCo, to Mexico.	No Potential. Suitable habitat is not present within the Study Area. See 12/3/19 USFWS BO. Only known population of ~100 individuals north of Study Area in the San Antonio Creek watershed, south side of Purisima Hills, over 10 miles north.	No	No Effect

*CNDDB 8/4/2021 **IPac 8/4/2021

State/Rank Abbreviations:

FE: Federally Endangered
FT: Federally Threatened
PE: Proposed Federally Endangered
PT: Proposed Federally Threatened
CE: California Endangered
CR: California Rare
CT: California Threatened
CCE: Candidate for California Endangered
CCT: Candidate for California Threatened

California Rare Plant Ranks:

CRPR 1A: Plants presumed extirpated in California and either rare or extinct elsewhere
CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere
CRPR 2A: Plants presumed extirpated in California, but common elsewhere
CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
CRPR 4: Plants of limited distribution - a watch list
0.1 - Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2 - Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3 - Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Global/State Ranks:

G1/S1 – Critically Imperiled
G2/S2 – Imperiled
G3/S3 – Vulnerable G4/S4 – Apparently Secure
G5/S5 – Secure
Q – Element is very rare but there are taxonomic questions associated with it.
Range rank – (e.g., S2S3 means rank is somewhere between S2 and S3)
? – (e.g., S2? Means rank is more certain than S2S3 but less certain that S2)

APPENDIX E. FEDERALLY LISTED WILDLIFE SPECIES REPORTED IN THE REGION

APPENDIX E. FEDERALLY LISTED ANIMAL SPECIES REPORTED IN THE REGION

	Scientific Name	Common Name	Federal/State Status Global/State Rank CDFW Rank	Nesting, Breeding Period	Habitat Preference	Potential to Occur	Detected within Action Area?	Effect of Proposed Action
1.	***Ambystoma californiense*****	California Tiger Salamander	FT/CT G2G3/S2S3 WL	Rainy season	Need underground refuges, ground squirrel burrows & vernal pools or other seasonal water for breeding.	No Potential. Habitat not suitable for species.	No	No Effect
2.	***Brachyramphus marmoratus*****	Marbled Murrelet	FT/CE G3G4/S1 SA	May 15 through Sept 15	Breeders require mature, coastal coniferous forest for nesting and nearby coastal waters for feeding. In nonbreeding season, often forages farther from shore.	No Potential. No breeding potential; habitat not appropriate.	No	No Effect
3.	***Branchinecta lynchi****	Vernal Pool Fairy Shrimp	FT/- G3/S3 SA	Rainy Season	Clear water sandstone depression pools, grassed swale, earth slump, or basalt flow depression pools.	No Potential. There are no vernal pools within the Study Area.	No	No Effect
4.	***Charadrius nivosus****	Western Snowy Plover	FT/- G3T3/S2S3 SSC	March 15 through August 15	Sandy beaches, salt pond levees, & shorelines of large alkali lakes. Needs friable soils for nesting.	No Potential. Beach is inundated at high tide and does not provide suitable nesting habitat.	No	No Effect
5.	***Empidonax traillii extimus*****	Southwestern Willow Flycatcher	FE/CE G5/S1S2 SA	March 1 through August 31	Riparian woodlands in Southern California	No Potential. No nesting records for this species in the area. Riparian habitat in the Study Area is poorly suited for this species.	No	No Effect

	Scientific Name	Common Name	Federal/State Status Global/State Rank CDFW Rank	Nesting, Breeding Period	Habitat Preference	Potential to Occur	Detected within Action Area?	Effect of Proposed Action
6.	***Enhydra lutris nereis*****	Southern Sea Otter	FT/- G4T2/S2 FP	--	Needs canopies of giant kelp & bull kelp for rafting & feeding. Prefers rocky substrates with abundant invertebrates.	No Potential. Study Area does not include otter habitat.	No	No Effect
7.	***Euphilotes battoides allyni*****	El Segundo Blue Butterfly	FE/- G5T1/S1 SA	Jun-Sept	Host plant, coast buckwheat (*Eriogonum parvifolium*), found in dune scrub.	No Potential. Genetic analysis has confirmed that this species is not present on VSFB.	No	No Effect
8.	***Eucyclogobius newberryi****	Tidewater Goby	FE/- G3/S3 SSC	N/A	Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	**Moderate**. This species formerly occurred in Honda Creek and could re-colonize from the Santa Ynez River or Jalama Creek.	No	Not Likely to Adversely Affect.
9.	***Gasterosteus aculeatus williamsoni****	Unarmored Threespine Stickleback	FE/CE G5T1/S1 FP	N/A	Weedy pools, backwaters, and among emergent vegetation at the stream edge, in small S. Calif. streams. Requires cool, clear water.	No Potential. This species was translocated to Honda Creek in 1994, but the translocation attempt failed and UTS was not established.	No	No Effect
10.	***Oncorhynchus mykiss irideus****	Steelhead Trout	FE/- G5T1Q/S1 SA	Feb- Apr	Southern steelhead likely have greater physiological tolerances to warmer water and more variable conditions.	No Potential. Steelhead have been determined to be absent from Honda Creek.	No	No Effect

	Scientific Name	Common Name	Federal/State Status Global/State Rank CDFW Rank	Nesting, Breeding Period	Habitat Preference	Potential to Occur	Detected within Action Area?	Effect of Proposed Action
11.	***Phoebastria albatrus*****	Short-tailed Albatross	FE/- G1/S1 SSC	--	--	No Potential. No breeding potential on-shore.	No	No Effect
12.	***Rana draytonii****	California Red-Legged Frog	FT/- G2G3/S2S3 SSC	Jan-Sept	Lowlands and foothills in or near sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks for larval development.	**Present**. This species occurs in Honda Creek.	Yes	May Affect: Likely to Adversely Affect
13.	***Sternula antillarum browni****	California Least Tern	FE/CE G4T2T3Q/S2 FP	March 15 through August 15	Nests on sand beaches, alkali flats, bare flat ground from San Francisco Bay to N. Baja California. Colonial breeder.	No Potential. Beach is inundated at high tide and does not provide suitable nesting habitat.	No	No Effect
14.	***Vireo bellii pusillus*****	Least Bell's Vireo	FE/CE G5T2/S2 SA	March 15 through August 15	Riparian habitat, near water or dry streambed, <2000 ft. Nests in willows, mesquite, Baccharis.	No Potential. No nesting records for this species in the area. Riparian habitat in the Study Area is poorly suited for this species.	No	No Effect

*CNDDB 8/4/2021 **IPac (USFWS) 8/4/2021

Federal and State Status Abbreviations:
FE: Federally Endangered
FT: Federally Threatened
PE: Proposed Federally Endangered
PT: Proposed Federally Threatened
CE: California Endangered
CT: California Threatened
CCE: Candidate for California Endangered
CCT: Candidate for California Threatened

CDFW Rank:
WL: Watch List
SSC: Species of Special Concern
FP: Fully Protected
SA: Special Animal

Global/State Ranks:
G1/S1 – Critically Imperiled
G2/S2 – Imperiled
G3/S3 – Vulnerable G4/S4 – Apparently Secure
G5/S5 – Secure
Q – Element is very rare but there are taxonomic questions associated with it.
Range rank – (e.g., S2S3 means rank is somewhere between S2 and S3)
? – (e.g., S2? Means rank is more certain than S2S3 but less certain that S2)

APPENDIX F. DELINEATION OF POTENTIALLY JURISDICTIONAL WETLANDS AND WATERS (ALTHOUSE AND MEADE 2/2022)

Delineation of Potentially Jurisdictional Wetlands and Waters

for

Union Pacific Railroad Milepost 304.88
La Cañada Honda Bridge Replacement Project
Santa Barbara Subdivision



Prepared for

Union Pacific Railroad Company
Steve Cheney, Sr. Director of Design & Environmental
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by

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Revised February 2022

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ATTACHMENT A. WETLAND DETERMINATION DATA FORMS

Cover Page: Honda Creek below La Cañada Honda Bridge facing west. February, 2018.

DEFINITIONS OF WETLAND INDICATORS

Wetland Plant Indicator Status Ratings in Order of Wetland Affinity

OBL	Obligate	Hydrophyte, almost always occur in wetland. Estimated probability >99 percent to occur in wetlands under natural conditions.
FACW	Facultative Wetland	Hydrophyte, usually occur in wetland, but may occur in non-wetland. Estimated probability >67% to 99% to occur in wetlands under natural conditions.
FAC	Facultative	Equally likely to occur in wetland and non-wetland. Estimated probability 33% to 67% to occur in wetlands under natural conditions.
FACU	Facultative Upland	Non-hydrophyte, usually occurs in non-wetland, but may occur in wetland. Estimated probability 1% to <33% to occur in wetlands under natural conditions.
UPL	Upland	Almost never occur in wetland. Estimated probability <1% to occur in wetlands under natural conditions.
NL	No Listed	Species not included in federal list of wetland indicator plants. Assumed upland for purposes of wetland analysis.

1 INTRODUCTION

1.1 Purpose

This report provides a delineation of potential jurisdictional wetland and non-wetland waters according to federal standards on the Union Pacific Railroad (UPRR) Right of Way (ROW) (Study Area) and adjacent Vandenberg Space Force Base (VSFB) property in Santa Barbara County, California for UPRR. Its purpose is to describe potentially jurisdictional waters and wetlands according to the Clean Water Act (CWA) Section 404, the Porter-Cologne Water Quality Act (State Water Code), and Fish and Game Code Section 1600. This document presents a comprehensive inventory and mapping effort of wetland and non-wetland aquatic resources within the Study Area and provides information for owners, the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Coastal Commission, and VSFB (Lead Agency) in decisions regarding activities in the Study Area. Section 2.0 provides more detail on the regulatory framework and scope of this jurisdictional delineation.

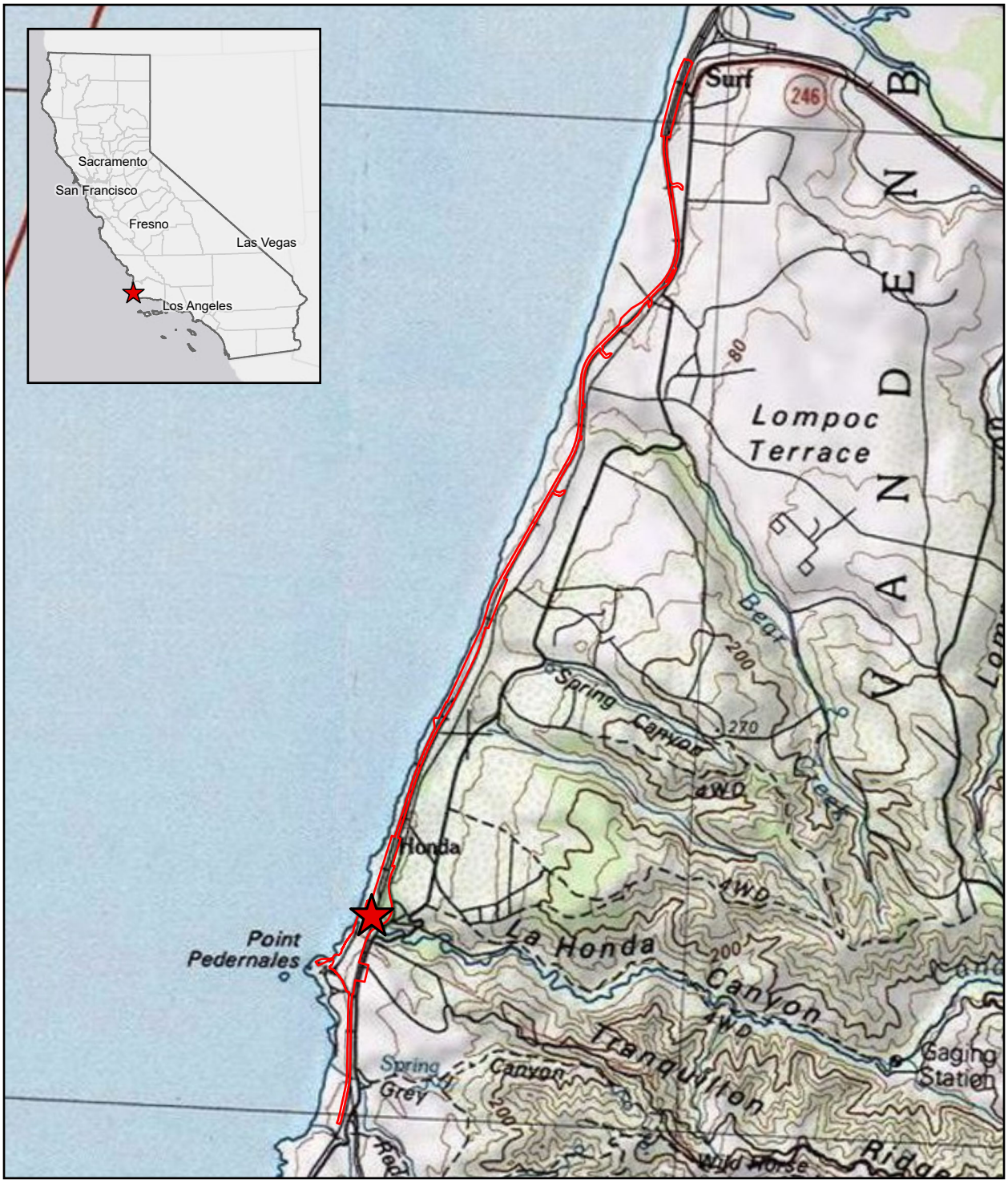
1.2 Study Area Location and Extent

La Cañada Honda (Honda Creek) crosses through UPRR property within VSFB located in central Santa Barbara County. The Study Areas is within the Coastal Zone, approximately 10 miles southwest of Lompoc, California. Approximate coordinates for the center of the Project area are 34.608709° N / 120.636024° W (WGS84) in the Point Arguello United States Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1). Elevation ranges from approximately 0 to 170 feet above mean sea level. The Study Area for this report is focused in La Cañada Honda (Honda Canyon) adjacent to the bridge but also includes portions of the surrounding terrace west of Coast Road.

1.3 Current Conditions

UPRR's Honda Bridge is positioned over Honda Creek on the coastal edge of VSFB between Coast Road and the Pacific Ocean (Figure 2). The Study Area is drawn to accommodate activities associated with replacing Honda Bridge and includes mostly coastal terrace adjacent to Coast Road. Honda Canyon and its associated wetlands, waters, and beach is included within the Study Area ranging from Coast Road on the east to the Pacific Ocean on the west.

Figure 1. United States Geological Survey Topographic Map



Legend

Study Area (182 acres)

Honda Bridge Replacement Location

N

0 0.5 1 Mile

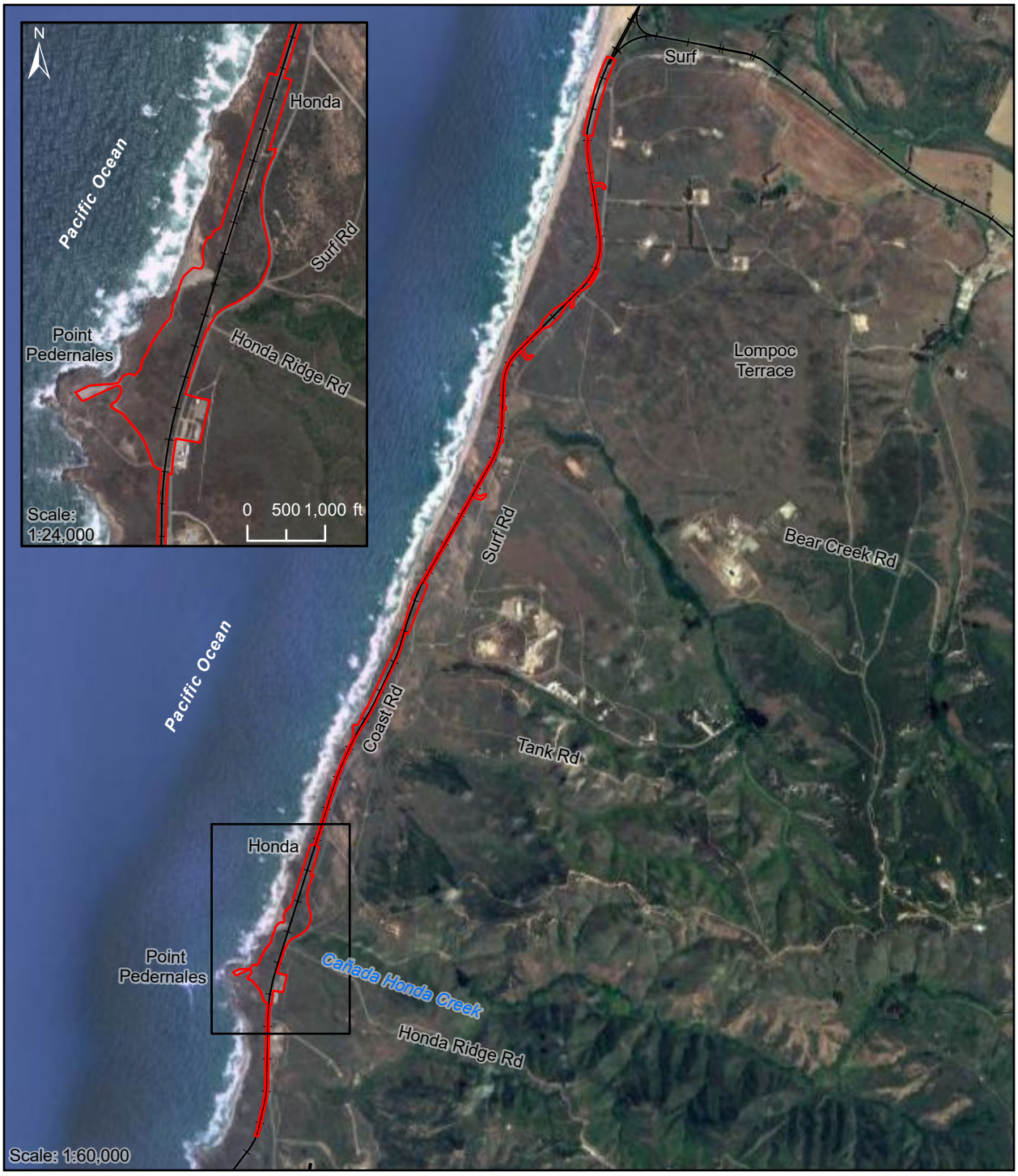
Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.62244°W 34.63748°N
Santa Barbara County, California

USGS Quadrangles: Point Arguello and Surf

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BIOLOGICAL AND ENVIRONMENTAL SERVICES

Map Updated:
October 18, 2021 10:37 AM by SAF

Figure 2. Aerial Photograph



Legend

Study Area (182 acres)

Union Pacific Railroad

N

0 0.5 1 Miles

Union Pacific Railroad - La Cañada Honda Bridge Replacement
Map Center: 120.61341°W 34.63847°N
Santa Barbara County

Imagery Source: Google Maps Satellite

1.3.1 Hydrology

The Study Area is located adjacent to the Pacific Ocean on VSFB. Water moves through the Study Area within Honda Canyon as Cañada Honda Creek (Honda Creek) and then exits to a sandy beach where it pools, moves subsurface, or flows directly into the ocean depending on the time of year and tidal movement (Figure 3). The Study Area is in the Santa Barbara Coastal watershed (HUC8) which is formed by the southern and western aspect of the Santa Ynez Mountains (Figure 4). The watershed for Honda Creek and its tributaries is approximately 7,500 acres.

Between 1956 and 1979, the Air Force filled an approximately 500-foot-wide and 90-foot-deep portion of Honda Canyon just upstream of UPRR's Honda Bridge to allow the construction of Coast Road (Figure 5). Two corrugated pipes, approximately 330-feet-long and 13 feet in diameter, channel the flow of Honda Creek through the fill. The pipe outlets are approximately 600 feet upstream of Honda Bridge. Between the pipes and the bridge, water flows northwestward in a main channel and then bends south again at the bridge. Additional historic or secondary flow paths south of the main channel are evident through topography and drift deposits (Figure 6).

FEMA has not mapped the floodplains within the Study Area in the National Flood Hazard Layer due to the property's access restrictions (FEMA 2005).

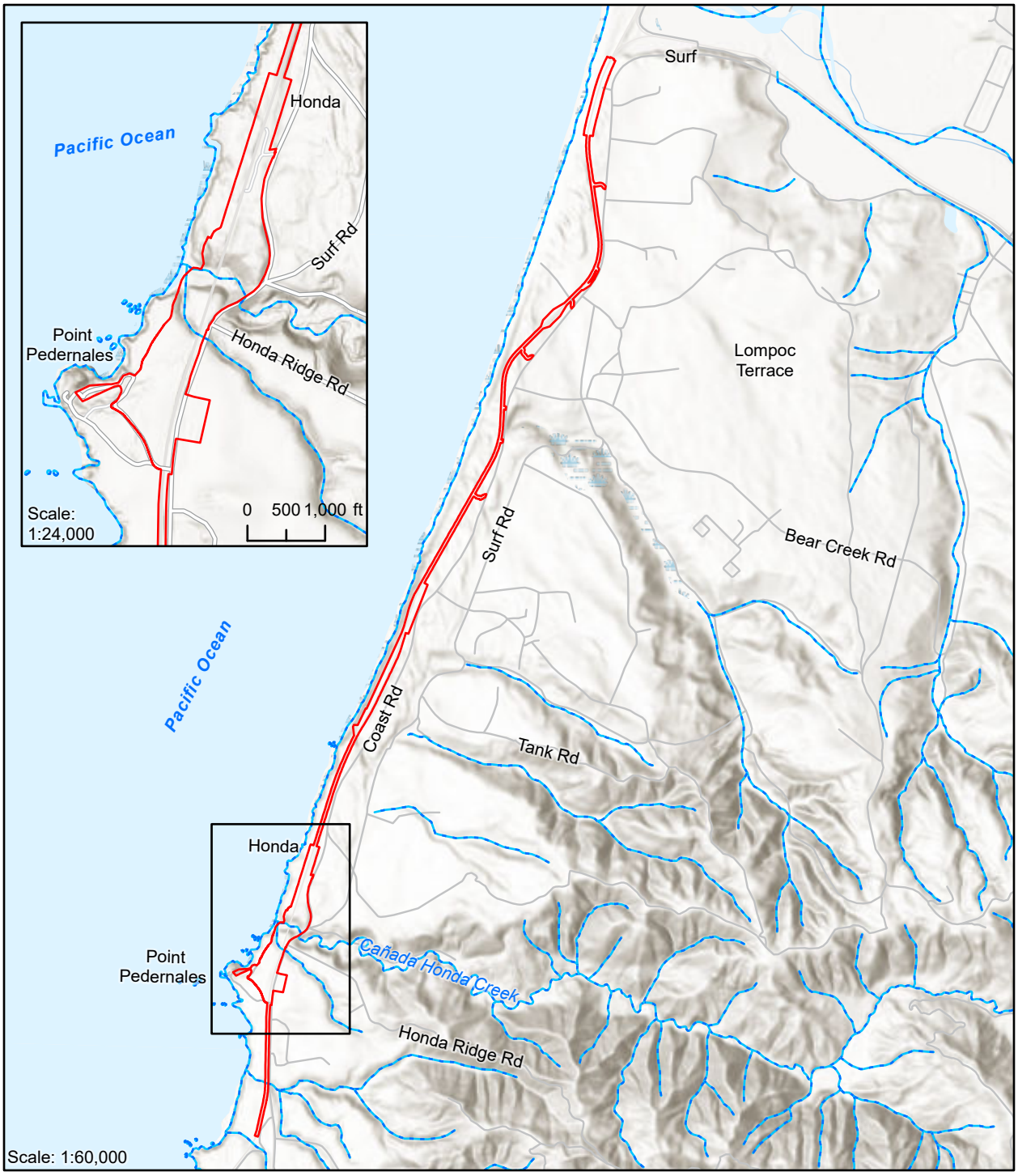
1.3.2 Vegetation and Habitats

Shrubby arroyo willow (*Salix lasiolepis*) thickets occur along the southern portion of the channel with round-leaved leather root (*Hoita orbicularis*), and California blackberry (*Rubus ursinus*) in the understory. A suite of herbaceous wetland species occurs on the channel bank and floodplain, including stinging nettle (*Urtica dioica* subsp. *holosericea*), annual beard grass (*Polypogon monspeliensis*), water beard grass (*P. viridis*), iris leaved rush (*Juncus xiphioides*), low bulrush (*Isolepis cernua*), poison hemlock (*Conium maculatum*) and dock (*Rumex* spp.).

Alkali heath (*Frankenia salina*) and sea fig (*Carpobrotus edulis*) dominate the outlet of a small drainage and the southern portion of the Honda Creek estuary, along the edge of the canyon slope. Other species include alkali heliotrope (*Heliotropium curassavicum* var. *oculatum*) and marsh jaumea (*Jaumea carnosa*).

The Honda Creek estuary contains tidal wetland species distributed in response to hydrologic processes (e.g., scouring and sediment deposition), saltwater inundation, and wetland condition. Marsh jaumea dominates the floodplain with common three-square bulrush (*Schoenoplectus pungens* var. *longispicatus*), alkali heath, alkali heliotrope, and saltgrass (*Distichlis spicata*) as common associates, though these species are occasionally locally dominant. Saltmarsh bulrush (*Bolboschoenus maritimus* subsp. *paludosus*) occurs along the banks and channel margin, and disturbance adapted species such as annual beard grass, water beard grass, giant horsetail (*Equisetum telmateia* subsp. *braunii*), water speedwell (*Veronica anagallis-aquatica*), water cress (*Nasturtium officinale*), fringed willowherb (*Epilobium ciliatum*) and Heermann's lotus (*Acmispon heermannii*) occur in the regularly scoured low-flow channel and along depositional gravel bars. The intermittent stream and pools support aquatic species such as mosquito fern (*Azolla filiculoides*) and alga mats.

Figure 3. National Hydrography Dataset



Legend

Study Area (182 acres)

Drainages and Coastline

N

0 0.5 1 Mile

Union Pacific Railroad -
La Cañada Honda Bridge Replacement
Map Center: 120.61341°W 34.63847°N
Santa Barbara County

Data Source: United States Geological Survey

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Map Updated:
December 27, 2021 11:21 AM by ZAR

Figure 4. Hydrologic Unit Codes



Legend

- Study Area (182 acres)
- Cañada Honda Creek - Frontal Santa Barbara Channel

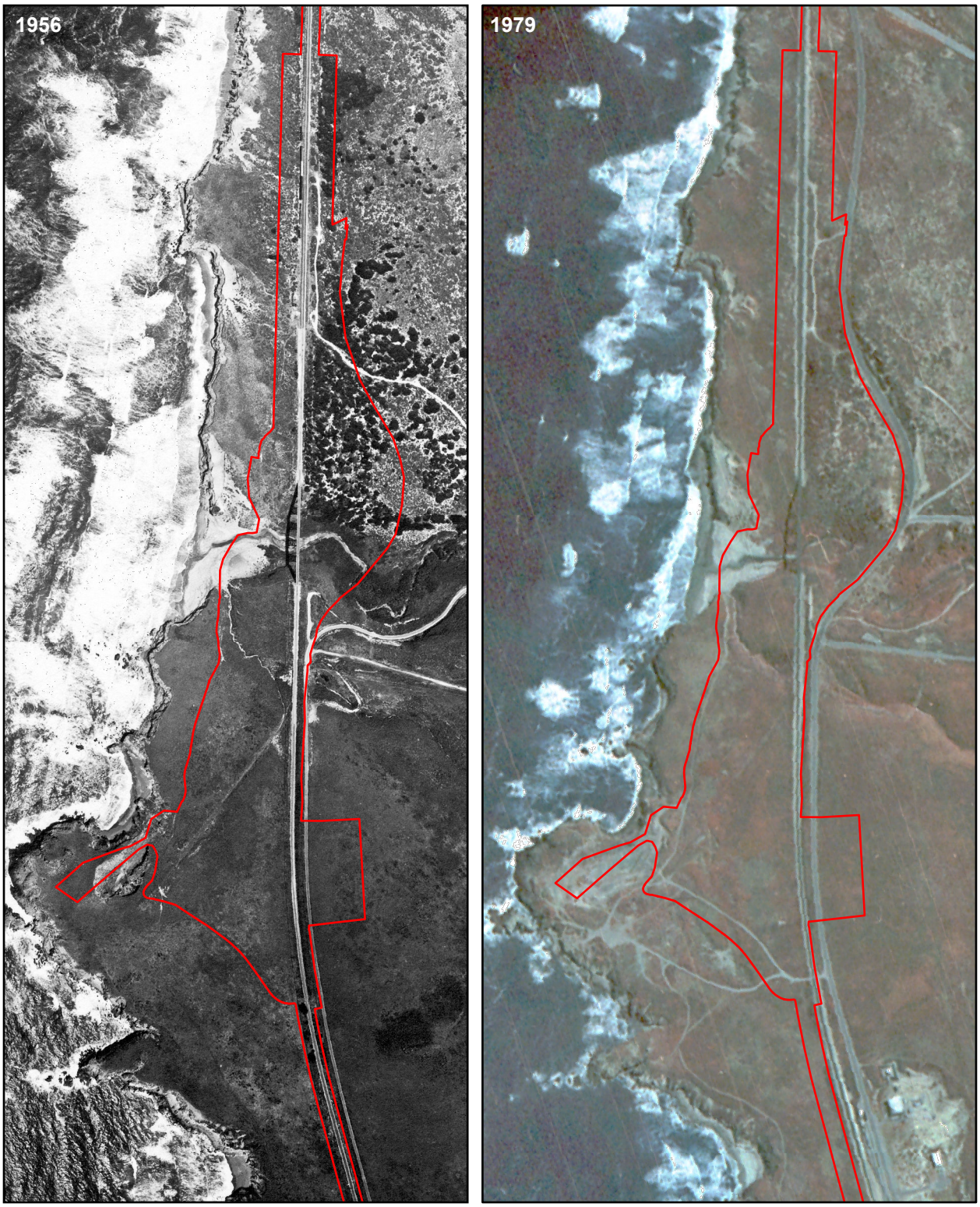
N

0 1.5 3 Miles

Union Pacific Railroad -
La Cañada Honda Bridge Replacement
Map Center: 120.60063°W 34.58827°N
Santa Barbara County

Data Source: United States Geological Survey

Figure 5. Aerial Imagery History



Study Area (182 acres)

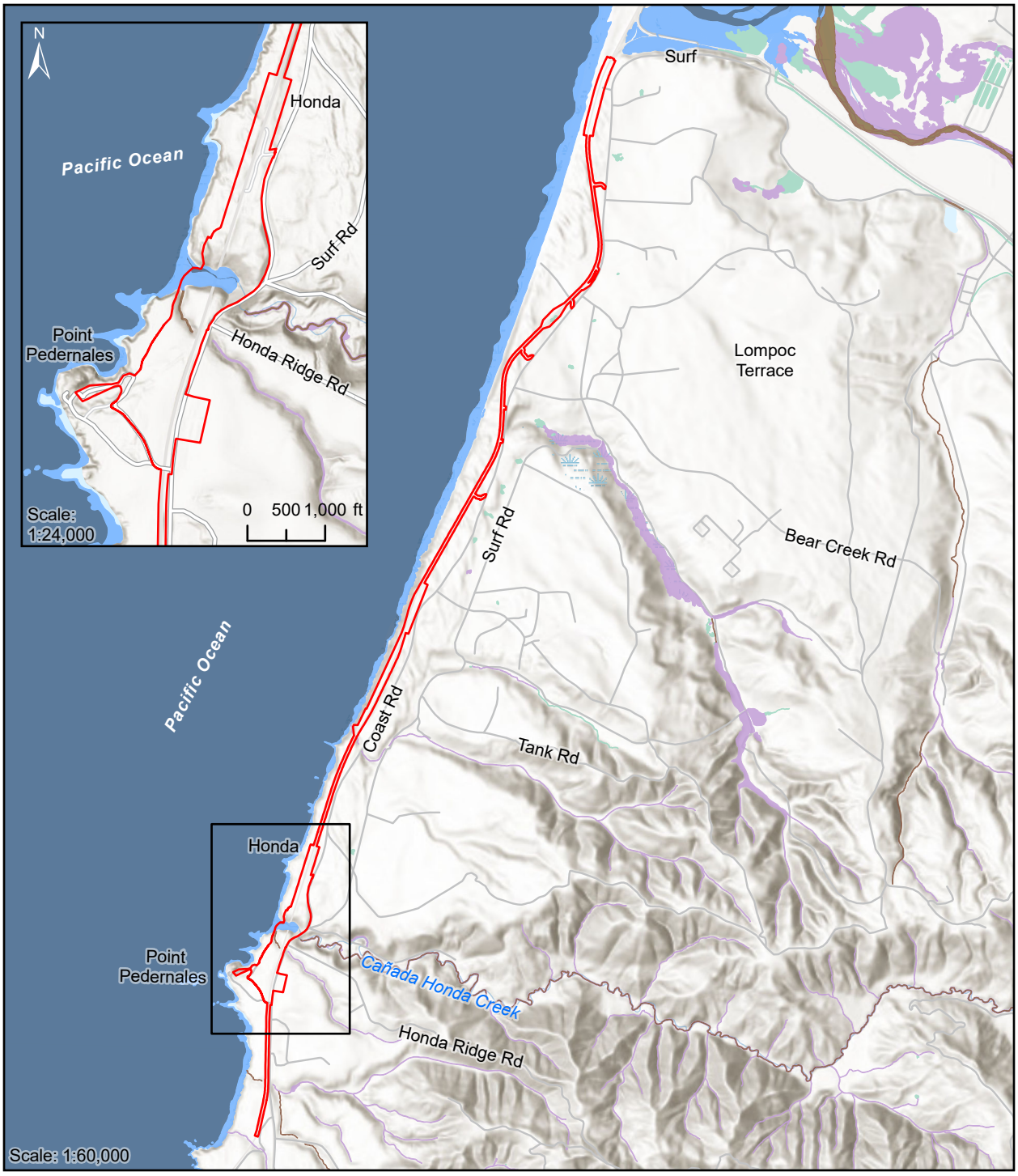
N

0 0.25 0.5 Miles

Union Pacific Railroad -
La Cañada Honda Bridge Replacement
Map Center: 120.6373°W 34.60735°N
Santa Barbara County

Data Source: UCSB MIL

Figure 6. National Wetland Inventory



Legend

- Study Area (182 acres)
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/ Shrub Wetland
- Riverine

N

0 0.5 1 Miles

Union Pacific Railroad - La Cañada Honda Bridge Replacement
Map Center: 120.61341°W 34.63847°N
Santa Barbara County

Data Source: United States Fish and Wildlife Service

1.3.3 Soils

Soil map units from the Natural Resource Conservation Service (NRCS) Soil Survey Geographic Database (SSURGO) are not available for the study area and surrounding areas due to military base confidentiality.

1.3.4 Climate

The climate data for Lompoc (Station ID 045064, 10 miles northeast of Project site) indicates that average 30-year rainfall is just under 16 inches (Table 1) for rainfall years that begin in July and end in June of the following calendar year. The 2016-2017 and 2018-2019 rainfall years were above average totaling 20.2 and 18.4 inches, respectively. However, there was a decrease in rainfall during the 2017-2018, 2019-2020, and 2020-2021 rainfall years, totaling 8.15, 11.17, and 8.4 inches, respectively (AcACIS 2020). Sample sites were analyzed in February 2018 and in October 2021, after a below average rainfall (Chart 1).

The National Climatic Data Center (NCDC) provided monthly weather data for Lompoc, California (Western Regional Climate Center 2021).

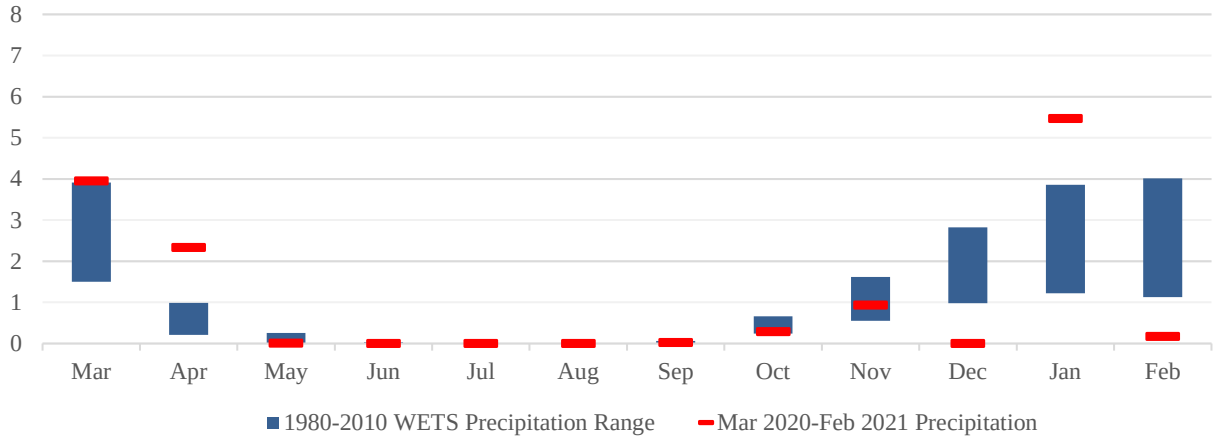
TABLE 1. PRECIPITATION BY MONTH

Data is provided in inches for the rain year prior to field work as well as the historical average. Mean precipitation is provided for the NCDC monthly normal, and monthly totals for the other years shown.

Year	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
1971-2000	0.01	0.05	0.25	0.49	1.34	2.16	3.19	3.58	3.38	0.93	0.31	0.04	15.73
1981-2010	0.01	0.03	0.10	0.74	1.41	2.56	3.33	3.59	2.88	1.01	0.29	0.04	15.99
2016-2017	0.01	0	0	1.07	1.88	2.16	6.31	7.19	0.86	0.36	0.36	0	20.20
2017-2018	0	0	0	0.26	0.04	0.06	2.21	0.17	5.10	0.31	0	0	8.15
2018-2019	0	0	0	0.72	1.48	1.29	5.30	5.95	2.49	0.14	1.02	0	18.39
2019-2020	0	0.04	0	0	1.60	2.65	0.59	0	3.95	2.33	0.01	0	11.17
2020-2021	0	0	0.02	0.29	0.93	0	5.47	0.17	1.48	0	0.04	0	8.40

CHART 1. WETS[1] PRECIPITATION BETWEEN 1980 AND 2010 COMPARED WITH 2020-2021 RAINFALL (INCHES)

WETS average range of precipitation from a probability analysis of 1981 to 2010 data compared to 2020-2021 precipitation. Data were retrieved from USDA



[1] WETS tables display the average range of precipitation by month by providing a probability analysis.

2 REGULATORY FRAMEWORK

2.1 United States Army Corps of Engineers

Section 404 of the CWA authorizes the USACE to regulate activities that discharge dredged or fill material to wetlands and other waters of the United States. The term "waters of the United States" encompasses resources described by the Environmental Protection Agency (EPA) and the Corps regulations, 40 Code of Federal Regulations (CFR) § 120.2(1) and 33 CFR § 328.3(a). The geographic limits of relevant federal jurisdiction for non-tidal waters of the U.S. are defined at 33 CFR § 328.4(c).

The EPA defines wetlands as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (EPA regulations at 40 CFR § 120.2(3); USACE regulations at 33 CFR § 328.3(b)). Wetlands are considered "special aquatic sites" under the USACE definition. Special aquatic sites are afforded protection under the CWA (Sections 401 and 404).

The USACE asserts jurisdiction over wetlands that exhibit hydrology, hydric soil, and hydrophytic vegetation (three indicators) by the standard set forth in the Arid West Regional Supplement (USACE 2008b). These areas must also exhibit a significant nexus to a Traditionally Navigable Water (TNW). For non-wetland water features, USACE jurisdiction is limited to the Ordinary High Water Mark (OHWM).

Navigable Waters Protection Rule (rescinded). On June 9, 2021, the EPA and the Department of the Army (Army) announced their intent to revise the definition of "waters of the United States (WOTUS)" put in place under the Navigable Waters Protection Rule (NWPR) on April 21, 2020 (85 FR 22250). Water regulations set forth in 2015 (2015 Rule) were repealed in 2020 as part of the NWPR. The NWPR defined categories of jurisdictional non-wetland waters based on stream classifications and specifically excluded ephemeral streams as jurisdictional tributaries (USACE 2020). When determining jurisdictional status of wetlands, the scope of *adjacency* was reduced to wetlands with only certain surface water connections to other jurisdictional waters under the NWPR. This excluded wetlands formed by artificial berms, for instance, which were considered adjacent under the pre-2015 regulatory regime and the 2015 Rule regardless of the presence or absence of a hydrologic surface connection (85 FR 22250).

Current Implementation of Waters of the United States (September 2021). The EPA and USACE (the agencies) are "in receipt of the U.S. District Court for the District of Arizona's August 30, 2021, order vacating and remanding the Navigable Waters Protection Rule in the case of *Pascua Yaqui Tribe v. U.S. Environmental Protection Agency* (EPA 2021)." The agencies are interpreting WOTUS consistent with the pre-2015 regulatory regime until further notice (40 CFR 230.3(s)). The following definitions are provided for the term waters of the U.S. (EPA 2021):

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;

3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
    a. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    c. Which are used or could be used for industrial purposes by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States under this definition;
5. Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;
6. The territorial sea;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the indicators of this definition) are not waters of the United States.

Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with EPA (EPA 2021).

As the EPA and USACE work to restore longstanding protections while redefining WOTUS, the following regulatory guidance established in 2008 will be used for determining jurisdictional status for onsite wetlands and waters:

2.2 Regional Water Quality Control Board

Section 401 of the Clean Water Act requires that any applicant for a Section 404 permit also obtain a Water Quality Certification from the State (401 Certification). The Water Code defines "waters of the State" broadly to include "any surface water or groundwater, including saline waters, [natural, and artificial wetlands] within the boundaries of the state." In April 2019, the State Water Resources Control Board (SWRCB) adopted procedures to define an area as a wetland if it meets three indicators: wetland hydrology, wetland soils, and (if vegetated) wetland plants. The definition also states: "An area is a wetland if: (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation. The Procedures provide the same wetland delineation methods that are used by the Army Corps of Engineers."

"Waters of the State, by definition, includes more aquatic features than Waters of the U.S., which defines the jurisdiction of the federal government. Waters of the State are not so limited. In

addition, the federal definition of a wetland requires a prevalence of wetland vegetation under normal circumstances. To account for wetlands in arid portions of the state, the Water Board's definition differs from the federal definition in that an area may be a wetland even if it does not support vegetation. If vegetation is present, however, the Water Board's definition requires that the vegetation be wetland vegetation. The State Water Board's proposed definition clarifies that vegetated and unvegetated wetlands will be regulated in the same manner." The effective date for the approved Procedures is May 28, 2020.

The state will also take jurisdiction over a non-wetland water to the OHWM, and tidal waters to the higher high tide line (CWA section 404 jurisdiction). Regional Water Quality Control Boards (RWQCB) provide regulatory oversight of wetland protection and impact mitigation.

2.3 California Coastal Commission

Wetlands found in the Coastal Zone are regulated under the California Coastal Act of 1976 (CCA) and are within the stricter jurisdiction of the California Coastal Commission (CCC). Unlike the USACE and RWQCB definitions requiring hydrology, hydric soils, and hydrophytic vegetation, the California Code of Regulations (14 CCR 13577) states that the CCC requires only one parameter. The CCA includes requirements related to coastal zone management and wetlands protection, such as coastal development permits. The CCA established the CCC as the coastal regulatory and management agency. The CCC, which enforces the Coastal Act, defines coastal wetlands in its regulations as:

> *Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentration of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some during each year and their location within, or adjacent to vegetated wetland or deep-water habitats.*

The CCC's map requirement and boundary determinations criteria are provided in 14 CCR §13576-13577. In addition to wetlands, the CCC will take jurisdiction over tidelands, submerged lands, public trust lands, beaches, coastal bluffs, and estuaries. Estuary jurisdictional boundaries are to be measured 300 feet landward from the mean high tide line. The tide lines are defined similarly to the USACE tidal data analysis.

3 DELINEATION METHODS

3.1 Overview of Sampling Methodology

Jurisdictional wetlands and other waters were identified using methods and guidelines described in the 1987 Manual, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (hereafter "2008 Supplement"; USACE 2008b), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008a). Site visits were made on February 22, 2018, and October 1, 2021, with multiple visits between 2018 and 2021 for site conditions inspections.

3.2 Wetland Classification from National Wetland Inventory

The Classification of Wetlands and Deepwater Habitats of the United States was developed by wetland ecologists, with the assistance of many private individuals and organizations and local, state, and Federal agencies (USGS 2013). It was designed for use over a broad geographic area—all U.S. States and Territories—by individuals and organizations with varied interests and objectives. The definition of wetland in this classification delimits the biological extent of wetland, as influenced by substrate properties and the hydrologic characteristics at each site. In marine habitats, the classification separates subtidal (below the fluctuating line of the tide, i.e., perpetually submerged) and intertidal (substrate is flooded and exposed with tides) habitats.

DOI (1979) intended that all available information should be used in making a wetland identification, as follows:

- If plants and soil are present at a site, then both a predominance of hydrophytes and a predominance of undrained hydric soil, as well as wetland hydrology, should be required for positive wetland identification.
- If plants are present but soil is absent (e.g., Algal Aquatic Beds on rock substrates), then a predominance of hydrophytic vegetation, as well as wetland hydrology, should be required for a positive wetland identification.
- If plants are absent but soil is present, then a predominance of undrained hydric soil, as well as wetland hydrology, should be required for positive wetland identification.
- If neither plants nor soil is present, then the wetland identification must be made strictly on the basis of hydrology. In this case, the substrate should be "saturated with water or covered by shallow water at some time during the growing season of each year." Cowardin et al. (1979) fully realized how vague this hydrologic definition was but, given the lack of detailed hydrologic data from the diversity of wetland types, geologic regions, and climatic regions of the U.S., there was no way they could have been more specific.

Even today, these data are not readily available across the nation. In these examples, three (3) indicators – hydrophytic vegetation, undrained hydric soil, and wetland hydrology; two (2) indicators—hydrophytic vegetation and wetland hydrology or undrained hydric soil and wetland hydrology; and one (1) indicator— wetland hydrology, respectively, would be used to make the identification, based on the features available at the particular site.

3.2.1 Wetlands

Soil pits were dug by hand at eight sampling sites based on the presence of hydrophytic vegetation, wetland hydrology, or low relief indicated potential wetland. For each wetland site an adjacent upland observational pit was dug to compare upland soil and vegetation features. Locations of all five sampling sites were recorded on the Jurisdictional Delineation Map (Exhibit A) and USACE Arid West Region Wetland Determination Data Forms (Attachment A).

3.2.1.1 Wetland Hydrology

The presence or absence of wetland hydrology field indicators was assessed following methodology presented in the 1987 Manual and the 2008 Supplement. Wetland indicators included, but were not limited to, high water table, site topography, drift lines, drainage patterns, sediment deposits, inundation, observation of wet conditions during the growing season, and saturation of soils.

3.2.1.2 Wetland Soils

Soils were examined according to methodology presented in the 2008 Arid West Supplement and 1987 Manual. Hydric soil indicators were recognized by soil characteristics from the USDA-NRCS publication, *Field Indicators of Hydric Soils in the United States* (version 8.2; USDA 2018) and the National Technical Committee for Hydric Soils (NTCHS) definition of hydric soils.

3.2.1.3 Wetland Vegetation

Vegetation in each stratum was identified to species and recorded. The indicator status of plants was confirmed by referring to the *National Wetland Plant List* (Lichvar *et al.* 2016) and the *Wetland Plants of Specialized Habitats in the Arid West* (Lichvar and Dixon 2007). Indicator status is defined in Table 4. Species dominance was noted for each stratum using the "50/20 Rule." Dominance test was calculated for all samples.

TABLE 2. WETLAND PLANT INDICATOR STATUS

Definitions of wetland plant indicator status, adopted from Lichvar and Dixon 2007.

Indicator Code	Category	Definition	% Occurring in Wetlands
OBL	Obligate Wetland	Occurs almost always in wetlands under natural conditions	>99%
FACW	Facultative Wetland	Usually occurs in wetlands, but often found in non-wetlands	67-99%
FAC	Facultative	Equally likely to occur in wetlands or non-wetlands	34-66%
FACU	Facultative Upland	Usually occurs in non-wetlands, but often found in wetlands	1-33%
UPL	Upland	Occurs almost always in non-wetlands under natural conditions	<1%
NA	No agreement	The regional panel was not able to reach a decision on this species	N/A

Indicator Code	Category	Definition	% Occurring in Wetlands
NI	No indicator	Insufficient information was available to determine an indicator status	N/A
NO	No occurrence	The species does not occur in that region	N/A
(+) or (-)	Facultative	A positive (+) or negative (-) sign was used with Facultative indicator categories to more specifically define the regional frequency of occurrence in wetlands. The positive sign indicates a frequency toward the higher end of the category (more frequently found in wetlands). A negative sign indicates a frequency toward the lower end of the category (less frequently found in wetlands).	
An asterisk (*) following a regional indicator identifies uncertain designation based on limited information which to determine the indicator status.			

3.2.1.4 Wetland Connectivity/Adjacency

Connectivity to Traditional Navigable Waters and their tributaries is established via field work where accessible, as well through analysis of aerial photographs, United States Geographic Service (USGS) topographic map, USGS National Hydrography Dataset, and site-specific topographic survey. This connectivity determines whether the feature has "significant nexus" (i.e. it significantly affects the chemical, biological, or physical integrity of a Traditional Navigable Water).

3.2.2 Non-Wetland Waters

Drainages were identified onsite as features that display evidence of hydrology but do not contain vegetation suggestive of wetlands. Evidence of OHWM was used to determine extent of Corps jurisdiction over these non-wetland waters of the U.S. The OHWM Manual (USACE 2010) lists and describes indicators associated with areas that become flooded or ponded but are not dominated by wetland vegetation and the duration of flooding, ponding, and/or near-surface soil saturation (less than or equal to 12 inches) is not sufficient to cause hydric soils to form or wetland hydrology conditions to occur. Ordinary High Water Mark was identified on Exhibit A and noted according to guidance provided in the OHWM Manual.

Cross-sections were not completed because detailed topographic survey is available and the variable dimensions of the OHWM are well defined topographically.

3.3 Mapping Methodology

Mapping efforts in 2018 utilized Samsung Galaxy Tab 4 tablets equipped with Garmin GLO GPS Receivers. Delineation boundaries were drawn using aerial photography, in field notation, and site-specific contours provided by VSFB from 2017 lidar (light detection and ranging) data. Existing datasets such as the NHD and the USGS topographic maps were considered during mapping. Our results vary somewhat from these existing publications due to the finer scale and on-the-ground data collection techniques used in our work. In the 2021 site visits, field spatial data were collected using an Apple iPhone connected to an Eos Arrow 100® GNSS receiver with sub-meter accuracy.

Additional field spatial data was collected on smart phones using AmigoCloud, a field data collection application. Results from both surveys were imported into Esri ArcGIS Pro, a Geographic Information Systems (GIS) software suite, and interpreted into maps. Maps were produced at a minimum scale of 1 map inch to 400 feet on the ground using field data and presented over the site-specific topographic contours.

4 TECHNICAL FINDINGS

Wetland habitats and drainage features in the Study Area meet federal and state jurisdictional definitions (Table 2). Our 2018 and 2021 field work resulted in the delineation of 7.39 acres of jurisdictional wetlands and non-wetland waters, specifically 6.97 acres of Federal and State, and 0.42 acres State only within the Study Area.

4.1 Federal Wetlands

Two federal wetland patches were mapped within the Study Area adjacent to Honda Creek (Exhibit A). The first wetland feature is a palustrine, emergent, non-tidal (DOI 1979) wetland dominated by multi-stem arroyo willows and marsh baccharis (*Baccharis glutinosa*) on the eastern side, closely adjacent to Honda Creek (Feature B; Photo 1). This wetland has stratified soil layers of dark organic material and sand, indicating periods of flooding. Drift deposits and biotic crust are also common.

As the creek bends south, the shrub vegetation transitions to an herbaceous wetland dominated by marsh jaumea, alkali heath, and saltgrass (Feature C; Photos 1 and 2). The feature continues until the beach no longer supports vegetation. Soil pits in this area revealed depletions and redoximorphic features to satisfy three hydric soil indicator definitions. Drift deposits were also present and the vegetion passed the FAC-neutral test. Upslope of the herbaceous wetland, close to the southern cliff edge are mats of iceplant.

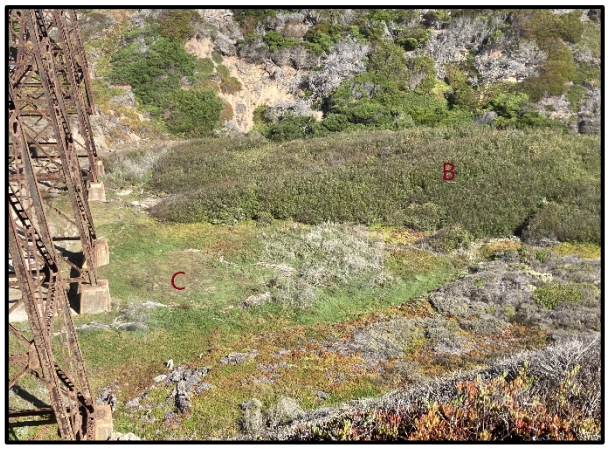


Photo 1. Arroyo willow (Feature B) in the background with coastal brackish marsh (Feature C) dominated by marsh jaumea and alkali heath in the foreground. Facing northeast, November 2, 2021.



Photo 2. Feature C showing marsh jaumea and alkali heath in the foreground, arroyo willow of feature B in the background, and upland coastal sage scrub/iceplant at right. Facing east, July 9, 2021.

4.2 Federal Non-Wetland Waters

Three types of jurisdictional Federal non-wetland waters were delineated within the Study Area. To understand the system of each feature, a narrative description provides details of each water's hydrology and OHWM indicators.

4.2.1 Honda Creek

Honda Creek flows from two 13-foot diameter culvert pipes underneath Coast Road to the Pacific Ocean. The creek is unvegetated and has water marks, sediment deposits, drift deposits, and drainage patterns as evidence of hydrology (Feature A). The bank is mostly bare, with a braided channel.

Feature A was divided into A^1 and A^2, where A^1 is estuarine and A^2 is riverine. In general, A^1 is Honda Creek shoreward and A^2 is Honda Creek east of the bridge and up to the OHWM. Feature A^1 is part of a dynamic system that has both salt and freshwater characteristics that depend on ocean tides and/or storm events where it may be flooded or completely dry. In 2018, water was present in the low flow channel and terminated in a closed lagoon above the beach (Photo 3). However, this feature was absent for much of 2021 due to low rainfall (Photo 4).



Photo 3. The outlet of Honda Creek (Feature A^1) showing a sandbar and full lagoon. Facing west, February 20, 2018.



Photo 4. The outlet of Honda Creek (Feature A^1) showing a dry sandy bed. Facing west, November 2, 2021.

Feature A^2 is generally described upstream from Honda Creek, east of Honda bridge. This feature begins to narrow around the bridge foundations and meander as it transitions upstream into freshwater habitat types.



Photo 5. Honda Creek upstream and east of the bridge, view west-northwest, Feature A[2], July 9, 2021.



Photo 6. Honda Creek northeast of Bent 5 showing the bed and bank, view southwest, Feature A[2], November 2, 2021

Based on Althouse and Meade observations, the High Tide Line (HTL) is shown on Exhibit A. We show the HTL just upstream from the bridge (Feature A[2] - riverine) where flow is occasionally influenced by wave uprush. The habitat does not coincide with estuarine resource types under Cowardin classification because it is not regularly influenced by tides.

4.2.2 Pacific Ocean

The west side of the Study Area is the Pacific Ocean, or an unconsolidated sand bottom, subtidal marine, water habitat (DOI 1979). Where the ocean meets the shore is an unconsolidated sand shore, intertidal, marine, water habitat. These areas are considered tidal non-wetland waters per USACE standards (Feature E). The NOAA data for Oil Platform Harvest (Station 9411406) lists the higher high tide line (Mean Higher High Water [MHHW]) as 5.22 feet using the 1983-2001 epoch (NOAA 2021; MLLW datum[2]). The subtidal and intertidal area comprise 4.52 acres within the Study Area.

4.2.3 Ephemeral Drainage

An ephemeral drainage that originates south of lower Honda Ridge flows west adjacent to Honda Ridge Road and through a culvert under Coast Road and the railroad before terminating at Honda Beach just east of the lower beach access road (Feature G, Photo 5). This drainage only conveys water during storm events. The lower reach of the drainage in the Study Area exhibits an unvegetated bed of sand and cobbles with iceplant and coastal scrub on the adjacent slopes (Photo 5). Hydrology indicators include drainage patterns, ripples, and sediment deposits.

[2] Use of MLLW as the datum for this location is consistent with the Corps' mapping standard of NAVD88 datum for this area. NOAA's Gaviota State Park gage 9411388 measures NAVD88 datum 0.09 feet above MLLW. Port San Luis 9412110 measures NAVD88 as 0.08 feet above MLLW. Santa Barbara 9411340 shows NAVD88 as 0.13 feet above MLLW.



Photo 7. Ephemeral drainage outlet (Feature G) east (left) of lower beach access road. Facing northeast, September 22, 2020.



Photo 8. Lower reach of ephemeral drainage (Feature G) east of lower beach access road. Facing northwest, November 1, 2021.

4.3 Additional Jurisdictional Features

Features A, B, C, and E mentioned in Sections 4.1 and 4.2 are considered jurisdictional per state standards as well as federal. Two additional areas may be considered jurisdictional by state agencies. Feature D contains a patch of deeply rooted marsh jaumea and marsh bulrush with no hydric soil indicators (Photo 7). Feature F is comprised of arroyo willow riparian woodland near the Honda Creek culverts that formed on a berm adjacent to the main stem of Honda Creek.



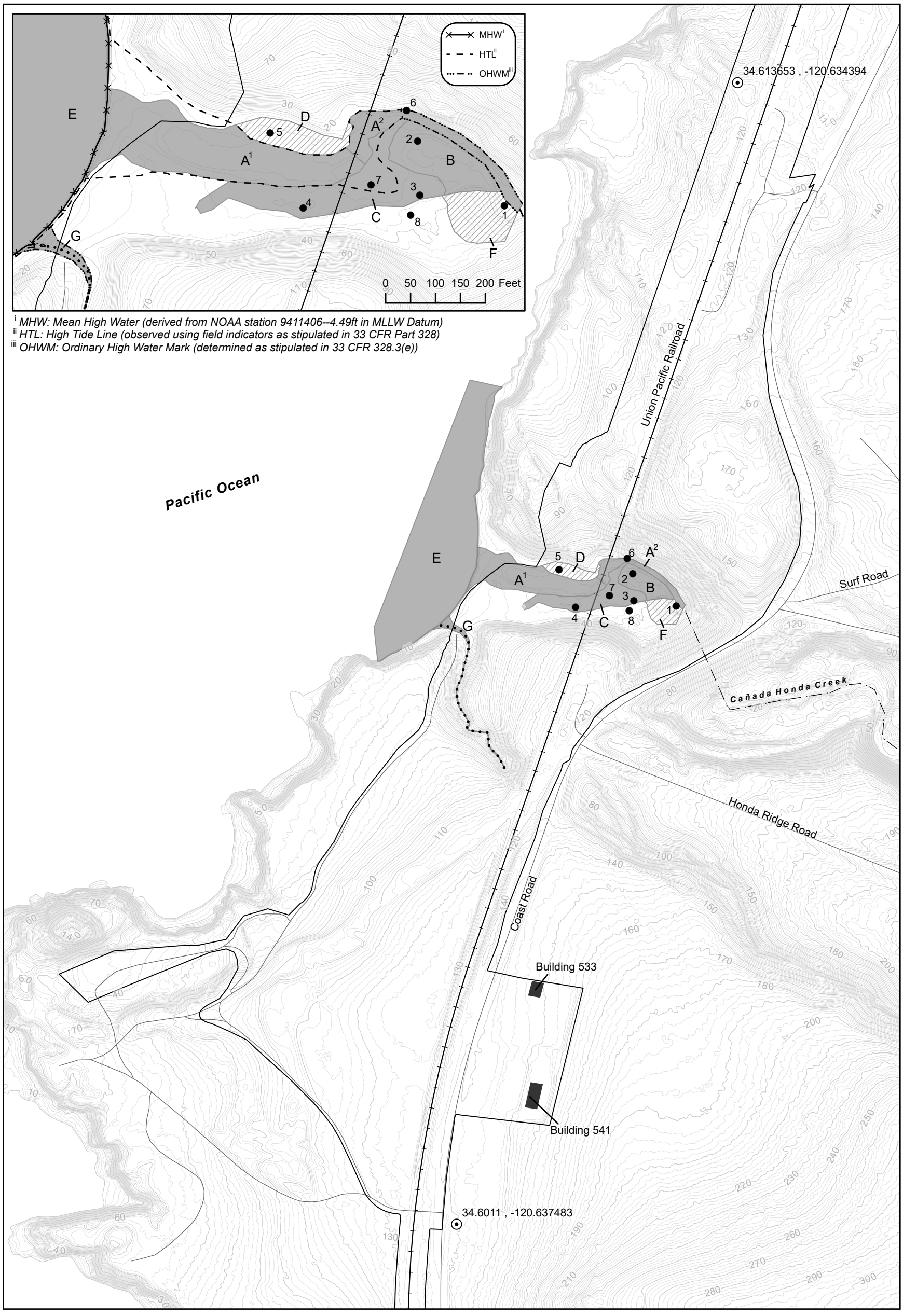
Photo 9. State wetland on floodplain (Feature D). Facing northeast, October 1, 2021.



Photo 10. Willow riparian wetland on the right side of photo, near toe of slope indicated by orange arrow. View west from Coast Road. January 14, 2018.

Exhibit A. Wetland Delineation

[i] *MHW: Mean High Water (derived from NOAA station 9411406--4.49ft in MLLW Datum)*
[ii] *HTL: High Tide Line (observed using field indicators as stipulated in 33 CFR Part 328)*
[iii] *OHWM: Ordinary High Water Mark (determined as stipulated in 33 CFR 328.3(e))*



Legend

- Federal and State Jurisdiction (6.74 acres)
- State Jurisdiction (0.42 acre)
- Ephemeral Drainage
- Perennial/Intermittent Drainage
- Sample Site
- Study Area (182 acres)
- VSFB Buildings
- Union Pacific Railroad
- Roads
- Site Control Point

N

0 100 200 300 400 Feet

Union Pacific Railroad -
La Cañada Honda Bridge Replacement
Map Center: 120.63754°W 34.60734°N
Santa Barbara County
Contour Interval: 2ft (minor),10ft (major)
Datum
Investigators: LynneDee Althouse, Adam Searcy, Zach Raposo

ALTHOUSE AND MEADE, INC.
BIOLOGICAL AND ENVIRONMENTAL SERVICES

Map Updated:
February 03, 2022 09:29 PM by ZAR

TABLE 3. JURISDICTIONAL FEATURE CHARACTERISTICS

Feature Type	ID	Sample Site	Dominant Species	Wetland Veg.?	Soil Indicator	Wetland Soil?	Hydrology Indicator	Hydrology?	Jurisdiction
Honda Canyon Creek – Estuarine	A[1]	n/a	FACW (90% bare ground)	✓	None		B3, B7, B10	✓	USACE RWQCB CCC
Honda Canyon Creek – Sand Streambed Lower Perennial Riverine	A[2]	1 & 6	FACW, FAC (80% bare ground)	✓	None		B1, B2, B3, B7, B9, B10, C9, D5	✓	USACE RWQCB CCC
Adjacent Wetland – Deciduous Scrub-Shrub Palustrine	B	2	FACW, NL	✓	A5	✓	B3, B12	✓	USACE RWQCB CCC
Adjacent Wetland – Persistent Emergent Palustrine	C	3, 4 & 7	OBL, FACW, FAC	✓	F3, F6, F7	✓	B3, D5	✓	USACE RWQCB CCC
Floodplain State Wetland	D	5	NL, FAC, OBL	✓	None		B3, B11, B12	✓	RWQCB CCC
Pacific Ocean – Sand Unconsolidated Bottom Sub/Intertidal Marine	E	n/a	None		None		NOAA MHHW Line	✓	USACE RWQCB CCC
Riparian – Deciduous Scrub-Shrub Palustrine	F	n/a	FACW	✓	None		None		RWQCB CCC
Ephemeral Drainage	G	n/a	None		None		B10	✓	USACE RWQCB CCC

NL: Not listed
FAC: 34-66% in wetlands
FACW: 67-99% in wetlands
OBL: 99% in wetlands

A5: Hydrogen Sulfide
F3: Depleted Matrix
F6: Redox Dark Surface
F7: Depleted Dark Surface

B1: Water Marks
B2: Sediment Deposits
B3: Drift Deposits
B7 Inundation on Aerials
C9: Saturation Visible on Aerial Imagery

B9: Water-Stained Leaves
B10: Drainage Patterns
B11: Salt Crust
B12 Biotic Crust
D5: FAC-Neutral Test

5 JURISDICTIONAL DELINEATION

The Exhibit A shows 7.16 acres of jurisdictional wetlands and waters, of which 0.92 acre meets the definition of wetland by the USACE, RWQCB, and CCC. Approximately 5.82 acres of non-wetland waters were also mapped on Exhibit A. An additional 0.42 acre of habitat may be jurisdictional per state standards only.

Honda Creek estuarine habitat includes areas of sandy tidal beach, herbaceous emergent wetland, scrub-shrub wetland, scrub-shrub riparian (likely only state jurisdiction), and a secondary channel with hydrophytic plants. South of the creek system is another drainage that flows along the access road that is jurisdictional per federal and state standards.

Wetland jurisdictional area calculations are included in Table 4.

TABLE 4. JURISDICTIONAL MEASUREMENTS

Calculated jurisdictional areas are given for the Study Area.

Feature	Type	State Resource Type	ORM Resource Type	Cowardin Classification	Jurisdiction	Area (ac)	Area (sf)
A[1]	Non-Wetland	Estuary	Tidal wetland/	Estuarine	Federal and State	0.96	42030
A[2]	Non-Wetland	Stream Channel	River	Riverine – lower perennial; unconsolidated bottom	Federal and State	0.24	10256
B	Wetland	Wetland	Non-tidal wetland	Palustrine – deciduous scrub-shrub	Federal and State	0.33	14257
C	Wetland	Wetland	Non-tidal wetland	Palustrine – persistent emergent	Federal and State	0.59	25659
D	State Wetland	Wetland	n/a	n/a	State	0.19	8160
E	Non-Wetland	Marine	Marine	Sub/intertidal marine – sand unconsolidated bottom	Federal and State	4.52	196884
F	Riparian	Riparian Zone	Riparian Zone	n/a	State	0.23	9845
G	Non-Wetland	Stream Channel	Stream Channel	n/a – upland, ephemeral stream	Federal and State	0.10	4250
TOTAL						**7.16**	311341

This report is subject to verification by the United States Army Corps of Engineers, Regional Water Quality Control Board, and the California Coastal Commission.

6 GLOSSARY OF TERMS

Most terms derived from U.S. Army Corps of Engineers (USACE 2021).

Ephemeral Stream: An ephemeral stream has flowing water only during and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

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

Intermittent Stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Mean High Water Line/Mark (MHWL) The line on the shore in tidal areas established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area.

Navigable Waters of the United States: Those waters of the United States that are subject to the ebb and flow of the tide shoreward to the mean high water mark and/or are presently used, or have been used in the past, or may be susceptible to use in the future to transport interstate or foreign commerce.

Non-tidal Wetland: A non-tidal wetland is a wetland (i.e., a water of the U.S.) that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open Water: An area that, during a year with normal patterns of precipitation, has standing or flowing water for sufficient duration to establish an ordinary high water mark. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. The term “open water” includes rivers, streams, lakes, and ponds. For the purposes of the NWPs, this term does not include ephemeral waters.

Ordinary High Water Mark (OHWM): The line on the shore in non-tidal areas established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area.

Perennial Stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Stream Bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Tidal Waters: The terms *tidal waters* and *waters subject to the ebb and flow of the tide* mean those waters that rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters and waters subject to the ebb and flow of the tide end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by hydrologic, wind, or other effects.

Waters of the United States:

(1) The territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide;

(2) Tributaries;

(3) Lakes and ponds, and impoundments of jurisdictional waters; and

(4) Adjacent wetlands.

Wetlands: Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

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8 ATTACHMENT

- **Attachment A. Wetland Determination Data Forms**

ATTACHMENT A. WETLAND DETERMINATION DATA FORMS

A United States Army Corps of Engineers, Wetland Determination Data Form (2008 Arid West Supplement Version 2.0) was completed in the field for two sampling sites. The forms included here are copies of forms written in the field. The original forms are on file in our office.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Honda Canyon City/County: VAFB Sampling Date: 2-20-18
Applicant/Owner: UPRR State: CA Sampling Point: 1
Investigator(s): K. Anderson, J. Tilligkeit Section, Township, Range: 7N 34W
Landform (hillslope, terrace, etc.): canyon Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): LRRC Lat: 34.607898 Long: -120.635069 Datum: WGS84
Soil Map Unit Name: none - secured site NWI classification: Estuarine/Marine Deepwater
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No + (If no, explain in Remarks.)
Are Vegetation —, Soil —, or Hydrology — significantly disturbed? Are "Normal Circumstances" present? Yes ____ No +
Are Vegetation +, Soil —, or Hydrology + naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes + No ____	**Is the Sampled Area within a Wetland?** Yes ____ No +
Hydric Soil Present?	Yes ____ No +	
Wetland Hydrology Present?	Yes + No ____	

Remarks:
drought + culverts

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10x10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	20	Y	FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10x10m)			
1. Baccharis salicifolia	20	Y	FAC
2. Salix lasiolepis	10	Y	FACW
3. Ceanothus thyrsiflorus	5	N	NL
4.			
5.			
	35	= Total Cover	
Herb Stratum (Plot size: 10x10m)			
1. Salix lasiolepis	3	Y	FACW
2. Arundo donax	3	Y	FACW
3. Veronica americana	1	N	OBL
4. Baccharis salicifolia	5	Y	FAC
5. Rumex crispus	1	N	FAC
6.			
7.			
8.			
	13	= Total Cover	
Woody Vine Stratum (Plot size: 10x10m)			
1. Rubus ursinus	15	Y	FAC
2.			
	15	= Total Cover	

% Bare Ground in Herb Stratum 80 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)
Total Number of Dominant Species Across All Strata: 7 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
+ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes + No ____

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/2	100					S	sandy w/cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- — Histosol (A1)
- — Histic Epipedon (A2)
- — Black Histic (A3)
- — Hydrogen Sulfide (A4)
- — Stratified Layers (A5) (**LRR C**)
- — 1 cm Muck (A9) (**LRR D**)
- — Depleted Below Dark Surface (A11)
- — Thick Dark Surface (A12)
- — Sandy Mucky Mineral (S1)
- — Sandy Gleyed Matrix (S4)
- — Sandy Redox (S5)
- — Stripped Matrix (S6)
- — Loamy Mucky Mineral (F1)
- — Loamy Gleyed Matrix (F2)
- — Depleted Matrix (F3)
- — Redox Dark Surface (F6)
- — Depleted Dark Surface (F7)
- — Redox Depressions (F8)
- — Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- — 1 cm Muck (A9) (**LRR C**)
- — 2 cm Muck (A10) (**LRR B**)
- — Reduced Vertic (F18)
- — Red Parent Material (TF2)
- — Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): >12 inches

Hydric Soil Present? Yes ____ No +

Remarks:

Trace redox stains on cobbles deep in pit. Soil moist near surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- — Surface Water (A1)
- — High Water Table (A2)
- — Saturation (A3)
- + Water Marks (B1) (**Nonriverine**)
- + Sediment Deposits (B2) (**Nonriverine**)
- + Drift Deposits (B3) (**Nonriverine**)
- — Surface Soil Cracks (B6)
- + Inundation Visible on Aerial Imagery (B7)
- + Water-Stained Leaves (B9)
- — Salt Crust (B11)
- — Biotic Crust (B12)
- — Aquatic Invertebrates (B13)
- — Hydrogen Sulfide Odor (C1)
- — Oxidized Rhizospheres along Living Roots (C3)
- — Presence of Reduced Iron (C4)
- — Recent Iron Reduction in Tilled Soils (C6)
- — Thin Muck Surface (C7)
- — Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- — Water Marks (B1) (**Riverine**)
- — Sediment Deposits (B2) (**Riverine**)
- — Drift Deposits (B3) (**Riverine**)
- + Drainage Patterns (B10)
- — Dry-Season Water Table (C2)
- — Crayfish Burrows (C8)
- + Saturation Visible on Aerial Imagery (C9)
- — Shallow Aquitard (D3)
- + FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No + Depth (inches): >12"

Water Table Present? Yes ____ No + Depth (inches): >12"

Saturation Present? (includes capillary fringe) Yes ____ No + Depth (inches): >12"

Wetland Hydrology Present? Yes + No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

In flow path of southern culvert drainage. Ok @ time of sampling. Mostly unvegetated bank w/ Salix sprouting adjacent and canopy overhead.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Honda Canyon City/County: VAFB Sampling Date: 2-20-18
Applicant/Owner: UPRR State: CA Sampling Point: 2
Investigator(s): K. Anderson, J. Tilligkeit Section, Township, Range: 7N 34W
Landform (hillslope, terrace, etc.): Terrace, bench Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): LRR C Lat: 34.608253 Long: -120.635576 Datum: WGS84
Soil Map Unit Name: none NWI classification: Estuarine Marine Wetland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No + (If no, explain in Remarks.)
Are Vegetation –, Soil –, or Hydrology – significantly disturbed? Are "Normal Circumstances" present? Yes ____ No +
Are Vegetation +, Soil –, or Hydrology + naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes + No ____	**Is the Sampled Area within a Wetland?** Yes + No ____
Hydric Soil Present?	Yes + No ____	
Wetland Hydrology Present?	Yes + No ____	

Remarks:
Sand bank/bench in canyon, drought year

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: n/a)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5'x5')			
1. Salix lasiolepis	70	Y	FACW
2. Baccharis pilularis	10	N	NL
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: 5'x5')			
1. Carpobrotus sp.	15	Y	NL
2. Hemizonia fasciculata	2	N	FAC
3. Ambrosia chamissonis	4	N	NL
4.			
5.			
6.			
7.			
8.			
	21 = Total Cover		
Woody Vine Stratum (Plot size: n/a)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 70	x 2 = 140
FAC species 2	x 3 = 6
FACU species 0	x 4 = 0
UPL species 29	x 5 = 145
Column Totals: 101 (A)	291 (B)

Prevalence Index = B/A = 2.88

Hydrophytic Vegetation Indicators:
– Dominance Test is >50%
+ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes + No ____

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR3/3	90					LS	
	10YR2/1	10						organic material
6-10	10YR3/3	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- + Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): >10 inches

Hydric Soil Present? Yes + No ___

Remarks:

stratified layers of organic material approximately ½ cm thick

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- + Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- + Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes + No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Honda Canyon City/County: VAFB Sampling Date: 2-20-18
Applicant/Owner: UPRR State: CA Sampling Point: 3
Investigator(s): K. Anderson, J. Tillinghast Section, Township, Range: 7N 34W
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): LRR C Lat: Long: Datum: WGS84
Soil Map Unit Name: None NWI classification: Estuarine Marine Wetland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)
Are Vegetation –, Soil –, or Hydrology – significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X
Are Vegetation +, Soil –, or Hydrology + naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes X No ____	

Remarks:
In secondary, high flow channel

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: n/a)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1. Baccharis pilularis	2	Y	NL
2.			
3.			
4.			
5.			
	2 = Total Cover		
Herb Stratum (Plot size: 10')			
1. Solanum douglasii	20	Y	FAC
2. Jaumea carnosa	40	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: n/a)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
+ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Thatch of Hschdeldia incana, Foeniculum vulgare, Rubus ursinus, & Polypogon monspeliensis

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					SL	
6-12	10YR 3/2	100					SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): >12 in

Hydric Soil Present? Yes ___ No X

Remarks:

Some OM decomposing in place but no stratification

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- + Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- + Salt Crust (B11)
- + Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): >12

Water Table Present? Yes ___ No ✓ Depth (inches): >12

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): >12

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Honda Canyon City/County: VAFB Sampling Date: 2-20-15
Applicant/Owner: UPRR State: CA Sampling Point: 4
Investigator(s): K. Anderson, J. Tillig Section, Township, Range: 7N 34W
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 1-2
Subregion (LRR): LRR C Lat: Long: Datum: WGS84
Soil Map Unit Name: None NWI classification: Estuarine & Marine Wetland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)
Are Vegetation —, Soil —, or Hydrology — significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X
Are Vegetation +, Soil —, or Hydrology + naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes + No ____	**Is the Sampled Area within a Wetland?** Yes + No ____
Hydric Soil Present?	Yes + No ____	
Wetland Hydrology Present?	Yes + No ____	

Remarks:
Drought year

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: n/a)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: n/a)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 10x10')			
1. Jaumea carnosa	40	Y	OBL
2. Frankenia salina	50	Y	FACW
3. Distichlis spicata	30	Y	FAC
4. Cardous pycnocephalus	3	N	NL
5. Helianthus annuus	10	N	FACU
6. Carpobrotus sp.	10	N	NL
7. Schoenoplectus pungens var. longispicatus	5	N	OBL
8.			
	148 = Total Cover		
Woody Vine Stratum (Plot size: n/a)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
+ Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes + No ____

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	90	10YR 3/6	3	RM	M	C	
			10YR 5/2	5?	D	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- + Depleted Matrix (F3)
- + Redox Dark Surface (F6)
- + Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): >12

Hydric Soil Present? Yes + No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- + Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- + FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No + Depth (inches): >12

Water Table Present? Yes ___ No + Depth (inches): >12

Saturation Present? (includes capillary fringe) Yes ___ No + Depth (inches): >12

Wetland Hydrology Present? Yes + No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Large logs and branches deposited as drift

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Honda City/County: Santa Barbara County (VSFB) Sampling Date: 10/01/2021

Applicant/Owner: UPRR State: CA Sampling Point: 1 (2021 #5)

Investigator(s): LynneDee Althouse, Adam Searcy Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): <2%

Subregion (LRR): C Lat: 34.608234 Long: -120.636180 Datum: WGS84

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ____	No ✔	

Remarks:

Scattered wood debris under thick vegetation on flood plain

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 2m^2)			
1. Jaumea carnosa	80		OBL
2. Bolboschoenus maritimus subsp. paludosus	10		OBL
3. Carpobrotus edulis	5		UPL
4. Heliotropium curassavicum	<1		FACU
5. Ambrosia chamissonis	<1		NL
6. Astragalus nuttallii var. nuttallii	<1		NL
7.			
8.			
	98 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Deeply rooted wetland vegetation on sandy floodplain.

SOIL

Sampling Point: 1 (2021 #5)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
15	7.5 YR 4/2	100	0				sand	
18+	7.5 YR 4/2	100	0				sand	wet/moist sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Sand moist at depth. Plants deeply rooted. No redox detected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Flood plain above Honda Creek.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Honda City/County: Santa Barbara County (VSFB) Sampling Date: 10/01/2021

Applicant/Owner: UPRR State: CA Sampling Point: 2 (2021 #6)

Investigator(s): LynneDee Althouse, Adam Searcy Section, Township, Range: T 7N, R 34W

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): <2%

Subregion (LRR): C Lat: 34.608308 Long: -120.635514 Datum: WGS84

Soil Map Unit Name: Tangair loamy sand NWI classification: riverine - intermittent re

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Salix lasiolepis	10		FACW
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 2m^2)			
1. Melilotus albus	20	Y	FACU
2. Polypogon monspeliensis	2	y	FACW
3. Polypogon viridis	2	y	FACW
4. Sonchus asper	2	y	FAC
5. Cotula coronopifolia and Trace of Jaumea carnos	2	y	OBL
6. Epilobium cliliatum	2	y	FACW
7. Rumex crispus	T	7	FAC
8. Chenopodium muale	T	N	FACU
	30 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	6	x 2 =	12
FAC species	2	x 3 =	36
FACU species	T	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	10 (A)		50 (B)

Prevalence Index = B/A = 5

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Juncus xiphioides (collected) and
a few Isolepis cernua

SOIL

Sampling Point: 2 (2021 #6)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5 YR 4/3	100	0	0			coarse san	sand and gravel <3cm; abundant
6-14	7.5 YR 4/2	100	0	9			sand	hit a large rock at 14 inches. grav

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ✔ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

No soil structure in stream bed. Gravelly structure may maintain oxygen below the surface. When I brought back soil to look under a microscope, saw some evidence of coated sand grains.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ✔ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ✔ Inundation Visible on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ✔ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✔ Water Marks (B1) (**Riverine**)
- ✔ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ✔ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✔ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✔ No _____ Depth (inches): 14

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Soil very moist to almost saturated at 14 inches.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Honda City/County: Santa Barbara County (VSFB) Sampling Date: 10/01/2021

Applicant/Owner: UPRR State: CA Sampling Point: 3 (2021 #7)

Investigator(s): LynneDee Althouse, Adam Searcy Section, Township, Range: Township 7N, Ranch 34W

Landform (hillslope, terrace, etc.): flood terrace Local relief (concave, convex, none): concave Slope (%): <0.5

Subregion (LRR): C Lat: 34.60799 Long: -120.63564 Datum: WGS84

Soil Map Unit Name: Elder loam NWI classification: Estaurine emergent wet

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No _____	

Remarks:

Buried plastic at 15-18" (trash) indicates significant soil movement during past storm events.
Drought year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 2m down)			
1. Jaumea carnosa	95		OBL
2. Bolboschoenus maritimus ssp. paludosus	2		
3.			
4.			
5.			
6.			
7.			
8.			
	97 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum <5 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Jaumea carnosa is obligate wetland indicator.

SOIL

Sampling Point: 3 (2021 #7)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10"	10 YR4/2	100		0			sandy	
10-18"			10 YR 6/3	80			SCL	
	10 YR 2/1	20						buried organics

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ✔ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Buried snail at 15" with dark organic matter.
Stratified layers with chroma 2 or less < 15cm.
Polyvalue below surface - not dark surface

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ✔ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ___ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Low area near main creek channel.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Honda City/County: Santa Barbara County (VSFB) Sampling Date: 10/01/2021

Applicant/Owner: UPRR State: CA Sampling Point: 4 (2021 #8)

Investigator(s): LynneDee Althouse, Adam Searcy Section, Township, Range: T 7N, R 34W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <2%

Subregion (LRR): C Lat: 34.60779 Long: -120.63554 Datum: WGS84

Soil Map Unit Name: Elder loam NWI classification: riverine - terrace

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Scattered wood on upland soil forming near toe of south slope.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Artemisia californica	20		UPL
2. Baccharis pilularis	15		UPL
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Carpobrotus edulis	20	n	UPL
2. Baccharis glutinosa	10	n	FACW
3. Jaumea carnosa	T	Y	OBL
4. Frankenia salina	T	Y	FACW
5.			
6.			
7.			
8.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 =
FACW species 10	x 2 = 20
FAC species 0	x 3 =
FACU species 0	x 4 =
UPL species 55	x 5 = 275
Column Totals: 65 (A)	295 (B)

Prevalence Index = B/A = 295/65=4

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

This area is dominated by upland plants withe a few wetland indicators scattered among the upland species along a secondary flood channel.

SOIL

Sampling Point: 4 (2021 #8)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 4/2	100					sandy loar	abundant roots;
								weak structure
14-18	10 YR 5/3						sand	no structure

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

No surface organic matter.
Carpenter ant colony was disturbed while digging the sample pit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ✔ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✔ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ✔ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Secondary or tertiary flow path on flood plain

APPENDIX G. CONCEPTUAL HABITAT RESTORATION PLAN (ALTHOUSE AND MEADE, MARCH 2022

Conceptual Habitat Mitigation Plan

for

Union Pacific Railroad Milepost 304.88
La Cañada Honda Bridge Replacement Project
Santa Barbara Subdivision



Honda Bridge over Honda Creek, Santa Barbara County, California

Prepared for

Union Pacific Railroad Company
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by

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March 2022

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Cover Page: Honda Bridge at the proposed Project site. Photo taken on November 2, 2021.

1 INTRODUCTION

Union Pacific Railroad (UPRR) proposes to replace the existing railroad bridge over Honda Creek with a new bridge (Project) that would be consistent with Federal Railroad Administration (FRA) standards and current UPRR safety standards. Construction of the new bridge would result in impacts to upland and riparian habitats on Vandenberg Space Force Base (VSFB) including impacts to waters of the United States (WOTUS) and Waters of the State (WOTS) within Honda Creek.

To mitigate impacts to jurisdictional waters, UPRR proposes to restore temporary impacts and enhance habitat within the Honda Creek watershed using appropriate mitigation ratios. This Conceptual Mitigation Plan (Plan) provides a conceptual restoration and revegetation design for impacted wetlands and waters in Honda Creek and upland habitats located elsewhere in the Project Action Area. Implementation of restoration would begin upon completion of the new bridge, expected in fall of 2024.

2 PROJECT DESCRIPTION

2.1 Project Location

Honda Bridge is located within VSFB, along the northwestern coast of Santa Barbara County, approximately 10 miles southwest of the City of Lompoc, California. The existing bridge crosses Honda Canyon and Honda Creek at UPRR Mile Post (MP) 304.88. Habitat restoration would occur between approximately 15 feet above mean sea level (amsl) within Honda Creek up to 200 feet amsl on slopes adjacent to the creek and on bluffs north and south of Honda Canyon.

2.2 Project Description

The Project is in a 30.2-acre Action Area that consists of bridge replacement, construction and temporary staging, and fiber optic relocation and replacement. The Project also includes mitigation for temporary and permanent impacts to upland habitats, CRLF habitat, and wetland and non-wetland waters associated with Honda Creek (Figure 1).

UPRR proposes to remove the existing 541-foot Honda Bridge deck and steel towers to construct a new bridge that would be approximately 581 feet in length. The new bridge deck would be supported by 5 new cast-in-place concrete columns. The steel piles and casing would be covered by cast-in-place concrete pile caps (each approximately 0.01-acre). To avoid unnecessary biological impacts to Honda Creek and floodplain, the existing Honda Bridge pedestals at Bents 6, 7, 8, and 9 would remain, and may continue to provide scour pools and aquatic habitat. Existing Abutment 1, and pedestals of Bents 2 to 5, 10 to 13, and Abutment 14 would remain in upland habitat.

Project construction activities would require access improvements and temporary staging areas on UPRR and VSFB property. Up to 17.3 acres of construction and staging activities directly related to bridge replacement would occur within the Action Area. Additional Project activities within the Action Area would consist of up to 2.6 acres for fiber optic relocation and replacement and an additional 10.3 acres for potential watershed enhancement via nonnative plant removal and native revegetation.

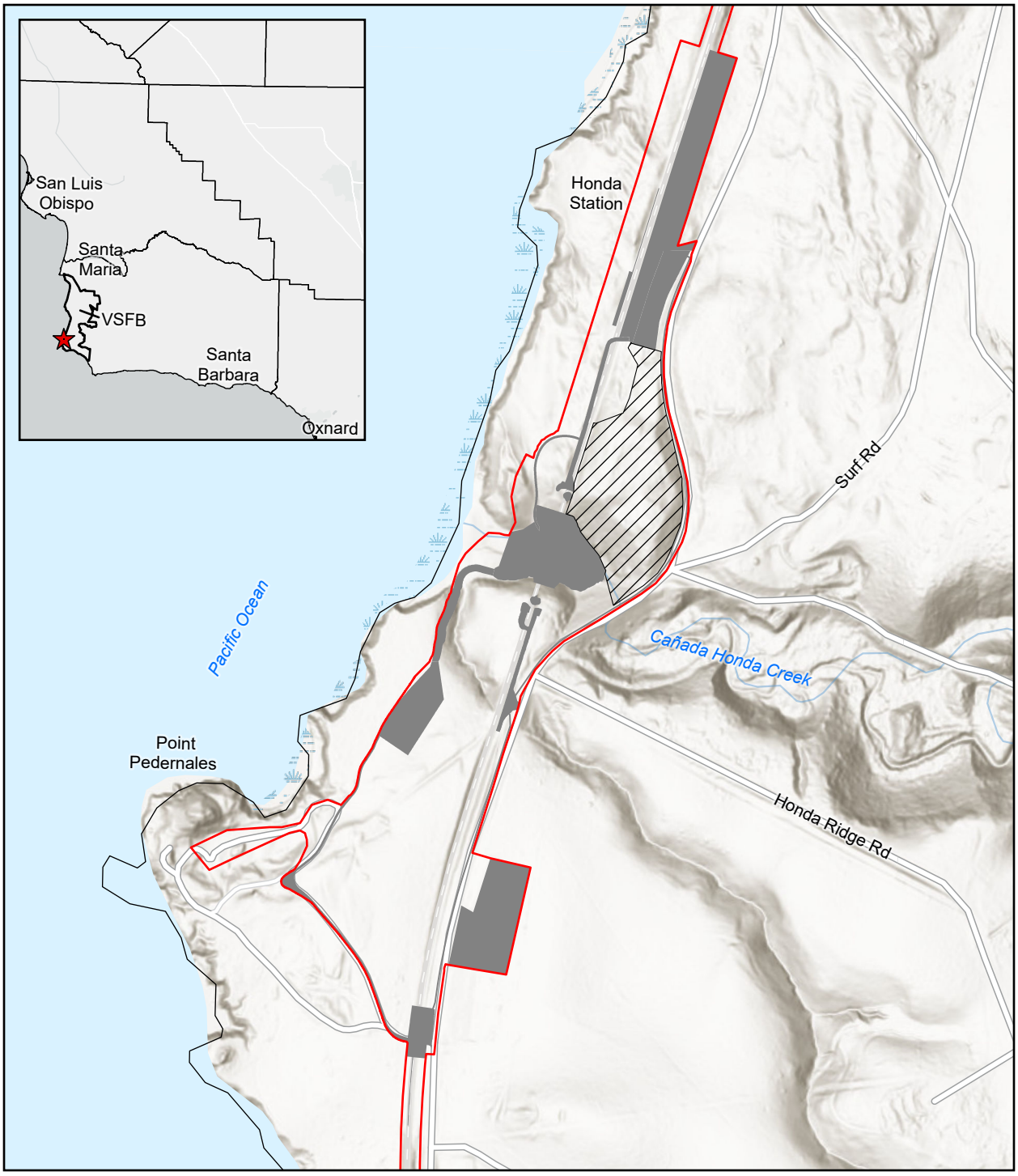
Impacts to WOTUS and WOTS would occur during construction of access routes and work platforms at the base of Honda Bridge. Temporary causeway and work platforms would be constructed to access the base of the bridge and proposed Piers 3, 4, 5, and 6. A sheet pile seawall would extend from the lower access road to protect the construction causeway from Honda Beach wave action and fluctuating tides. To protect the construction site from Honda Creek, the temporary fill slope along the eastern edge would be hardened with rip rap, approximately 8 feet high. To protect the construction work area from stormwater, six 72-inch diameter pipes would convey stormwater under the construction work area. The temporary pipes would be approximately 190 feet long and would extend to an opening in the sheet pile seawall. A temporary water diversion structure made up of sheet pile (approximately 25 feet long) would be placed downstream from the Coast Road culverts to divert stormwater to the six 72-inch diameter temporary pipes. The sheet pile diversion structure would redirect stormwater but would allow normal flow via a hole cut in the sheet pile. The Project would utilize VSFB's culvert repair project access road and platform to drive the sheet pile diversion structure.

Additional Project activities would occur north and south of Honda Canyon and include excavation of fill material from borrow sites, road improvements, and temporary and permanent fiber optic relocation.

Project mitigation actions include construction of 3 to 4 frog pools, approximately 2 to 3 feet deep, each about 400 to 550 square feet. Pools would be located southwest of the Coast Road culvert outfalls.

Weedy trees may also be removed from the canyon by root crown and/or cut stump herbicide application (not by pulling or digging). All disturbed upland and wetland areas are proposed to be restored and enhanced by reducing the percent cover of weedy vegetation compared to the baseline condition.

Figure 1. Project Overview



Legend

- Honda Bridge Replacement Location
- Study Area
- Action Area
- Potential Habitat Restoration Area

N

0 500 1,000 Feet

Union Pacific Railroad - La Cañada Honda Bridge Replacement
Map Center: 120.63657°W 34.6076°N
Santa Barbara County

Basemap: World Hillshade and Terrain Base

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Map Updated:
March 23, 2022 11:18 AM by SAF

3 PROJECT IMPACTS

3.1 Impacts to Jurisdictional Wetlands and Waters

Construction of temporary causeways and work platforms within Honda Creek and associated habitats would temporarily impact up to 1.58-acre of WOTUS and WOTS and up to 0.42-acre of WOTS. Permanent impacts from new bridge pile caps would total 0.03-acre of WOTUS and WOTS. Jurisdictional impacts are summarized in Table 1 and Figure 2.

TABLE 1. SUMMARY OF IMPACTS TO JURISDICTIONAL WETLANDS AND WATERS

Jurisdictional Waters/Wetlands	Impacts (acres)		Mitigation Required*		Mitigation Area (acres)	
	Temp	Perm	Ratio (Perm. Imp.)	Perm. Mitigation Req'd	Restoration & Enhancement of Temp Impact Areas	Creation of CRLF Pools
Federal & State Non-Wetland Waters	0.66	0.02	1.25:1	0.025	0.66	0.025 *(1089 sf))*
Federal & State Wetland	0.92	0.01	1.25:1	0.0125	0.92	0.0125 *(545 sf)*
State-Only Wetland	0.42	0	n/a	0	0.42	0
TOTAL	**2.00**	**0.03**		**0.038**	**2.00**	**0.038** *(1634 sf)*

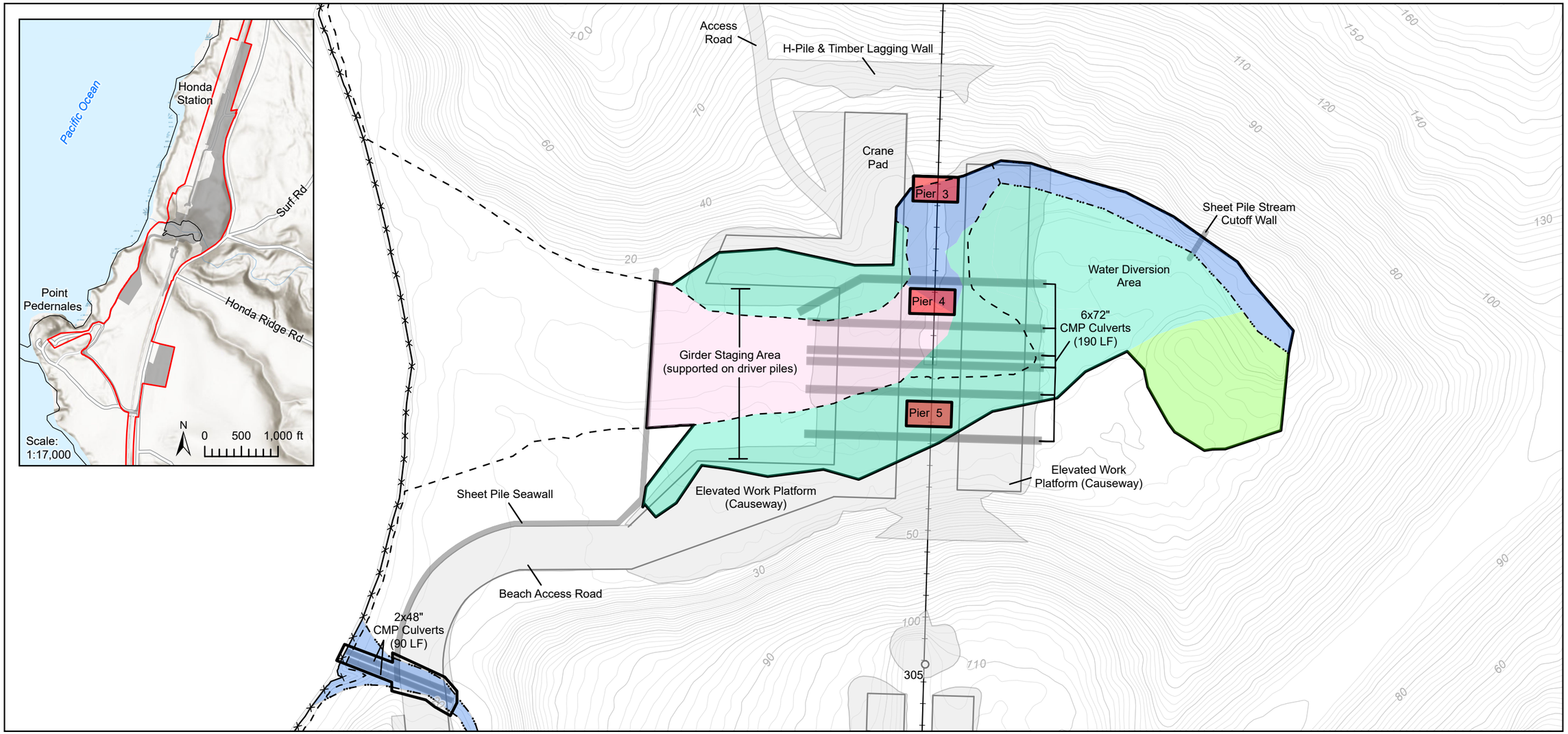
3.2 Impacts to Upland Habitats

Project activities may temporarily affect up to 4.8 acres of upland habitat including central coastal scrub, central coastal scrub/iceplant, and iceplant (Table 2). Some impacted central coastal scrub habitat has been historically disturbed and contains high proportions of non-native vegetation such as iceplant (*Carpobrotus* spp.) and acacia (*Acacia longifolia*). Historic dune habitats north of Honda Canyon have been heavily invaded by iceplant which may approach 100 percent cover. Areas that are dominated by nonnative plants would be restored to conditions similar to historic vegetation and after consultation with VSFB natural resource managers.

TABLE 2. SUMMARY OF IMPACTS TO UPLAND HABITAT

Habitat Type	Work Areas in Action Area	Impacts (Ac.)
Central Coastal Scrub	Abutment 7 & Access Road, Southern Borrow Source, Lower Causeway, Hand Holes, Fiber Optic Temporary Re-route	1.2
Central Coastal Scrub/Iceplant	Beach Access Road, Southern Borrow Source, Lower Causeway, Hand Holes, Fiber Optic Temporary Re-route	2.5
Iceplant	North Abutment 1, Crane Pad, and Pier 2 Access Roads	1.1
TOTAL		**4.8**

Figure 2. Jurisdictional Impacts



Legend

- Permanent Jurisdictional Impacts (0.03 acre)
- Temporary Jurisdictional Impacts (2.00 acres)*
- Construction Footprint
- Project Components
- Estuary (0.42 acre)
- Riparian Zone (0.23 acre)
- Wetland (1.11 acres)
- Stream Channel (0.27 acre)
- MHW
- HTL
- OHWM
- Railroad Track
- Milepost

N

0 50 100 Feet

**At this time, all estuarine, riparian, wetland and stream channel resources within the work area are considered impacted even though it will not all be temporarily filled. Additionally, VSFB proposes a temporary route to be impacted/filled for culvert repair/access which will be restored after Honda bridge construction is complete.*

Union Pacific Railroad -
La Cañada Honda Bridge Replacement
Map Center: 120.6363°W 34.6081°N
Santa Barbara County

Contour Interval: 2-foot

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Map Updated:
February 10, 2022 11:09 AM by ZAR

4 PROPOSED RESTORATION AND MITIGATION

4.1 Jurisdictional Wetlands and Waters

Mitigation requirements would be met through a mix of restoration and enhancement of wetlands and waters within Honda Creek and watershed enhancement through removal of nonnative vegetation and restoration of native species (Figure 3). UPRR would return all impacted habitats to their pre-Project conditions or better: all temporary fill would be removed, the creek bed would be returned to pre-Project contours, and habitats would be re-vegetated. UPRR would consult with VSFB biologists in developing a final Compensatory Mitigation and Monitoring Plan (CMMP) to restore the Honda Creek channel, flood plain contours, and associated vegetation. The final plan would incorporate Honda Creek flow models and potential tidal and storm wave/surge data to create resilient habitat that would survive a 25-year flood event.

Habitat within Honda Creek may be enhanced by the addition of rock weirs to create pool habitats between Coast Road and Honda Bridge. Staggered rock barriers would allow water to flow freely while creating a mix of shallow and deep water beneficial to a variety of organisms (WDFW 2004). UPRR proposes leaving the existing concrete bridge pedestals in place at Bents 6, 7, 8, and 9 as they have been present for 120 years and create scour pools that provide habitat for all life stages of CRLF as well as other aquatic organisms such as Baja California tree frogs (*Pseudacris hypochondriaca*) and two-striped garter snakes (*Thamnophis hammondii*).

Native species would be replanted in restored habitats once temporary causeways are removed and creek bed recontouring are complete. Revegetation may use a mix of salvaged plants, live stakes, container stock grown from local material, and distribution of appropriate seed mixes to restore and enhance riparian habitat (Table 3.). To prevent the transfer of nonnative plants and potential CRLF pathogens, impacted wetland species such as *Juncus textilis*, *Frankenia salina, Jaumea carnosa, Salix lasiolepis* and other species may be salvaged from Honda Creek prior to construction and maintained on site until restoration activities commence, rather than imported from other areas. Additional species may be replanted using seeds collected from within the Honda Creek watershed, when practicable. If onsite vegetation and seed is insufficient, off-site seed may be obtained from coastal Santa Barbara County (see Section 4.2).

TABLE 3. COASTAL BRACKISH AND FRESHWATER MARSH PLANTING MIXES

Salt / Brackish Marsh Mix	Freshwater Marsh Mix
Bolboschoenus maritimus	*Artemisia douglasiana*
Distichlis spicata	*Baccharis glutinosa*
Frankenia salina	*Juncus textilis*
Jaumea carnosa	*Salix lasiolepis*
Schoenoplectus americanus	*Schoenoplectus acutus*
Schoenoplectus pungens	*Typha latifolia*

During mitigation implementation, soil stabilization methods may include willow pole plantings, seed mixes, hydromulch, biodegradable fiber wattles, granular filter, grade-control structures, and rock riprap. Hydromulch would be composed of 2,000 lbs/acre mulch, 60 lbs/acre guar gum, and 60 lbs/acre AM 120 mycorrhizal inoculums (or equivalent soil inoculant). Planting and hydroseed application would occur in the fall, between October 1 and December 21 (preferably between October 1 and November 15) to minimize supplemental water demands and optimize growth during relatively warm days in the fall. All restoration activities would be overseen by the Project Biologist to verify that planting locations are appropriate and established horticultural practices are followed.

4.2 Frog Pool Creation

A string of three or four pools approximately 3 to 4 feet deep would be created on what is currently floodplain habitat southwest of the culvert outfalls. The three pools, approximately 20 feet in diameter would total 1100 square feet of inundated area in a normal year, surrounded by 3-factor wetland habitat (circumference about 2 to 3 feet wide; 544 square feet) with adjacent state wetland habitat suitable to provide frog cover from predators.

Frog pools would be excavated during the dry season (late summer/early fall) and the surrounding habitat will be weeded immediately. Wetland plants salvaged from the impact area during construction, plus local wetland seeds will be placed around the perimeter after soil is sufficiently moist from fall rains.

4.3 Upland Habitats

Impacted upland habitats would be returned to their pre-Project conditions or better. All borrow sites would be recontoured, all temporary fill removed, and disturbed habitats would be revegetated with salvaged topsoil or appropriate seed mixes (Table 4). South of Honda Canyon, central coastal scrub would be stabilized using a combination of hydromulch, biodegradable fiber wattles, and seeding with native species (Table 4). North of Honda Canyon, in potential beach layia habitat, topsoil would be salvaged prior to Project disturbance. Potential habitat will include areas near known occurrences that have exposed topsoil and/or native annuals. Topsoil will not be salvaged from disturbed areas that are infested with iceplant or other nonnative plants. Topsoil may be salvaged using hand tools or construction equipment and stored until restoration begins. Any disturbance to beach layia habitat would be mitigated at a 2:1 ratio and mitigation areas monitored and treated for nonnative species for 5 years. Treatment may include hand-weeding or herbicide application. Impacted upland areas dominated by nonnative vegetation such as *Carpobrotus* iceplant would be restored to a condition beneficial to sensitive plant and animal taxa. Table 4 includes seed mixes that will be used in Central Coastal Scrub restoration south of Honda Canyon and mixes in sandy iceplant-dominated areas north of the canyon. UPRR would consult with VSFB biologists in developing final restoration plans for such habitats.

If off-site seed is required, seed mixes may be obtained from S&S Seeds, Carpinteria, CA: Phone (805) 684-0436, Email: info@ssseeds.com. Seeds would be ordered as soon as the Project starts to ensure that they are available once restoration begins.

TABLE 4. CENTRAL COASTAL SCRUB AND ICEPLANT MIXES

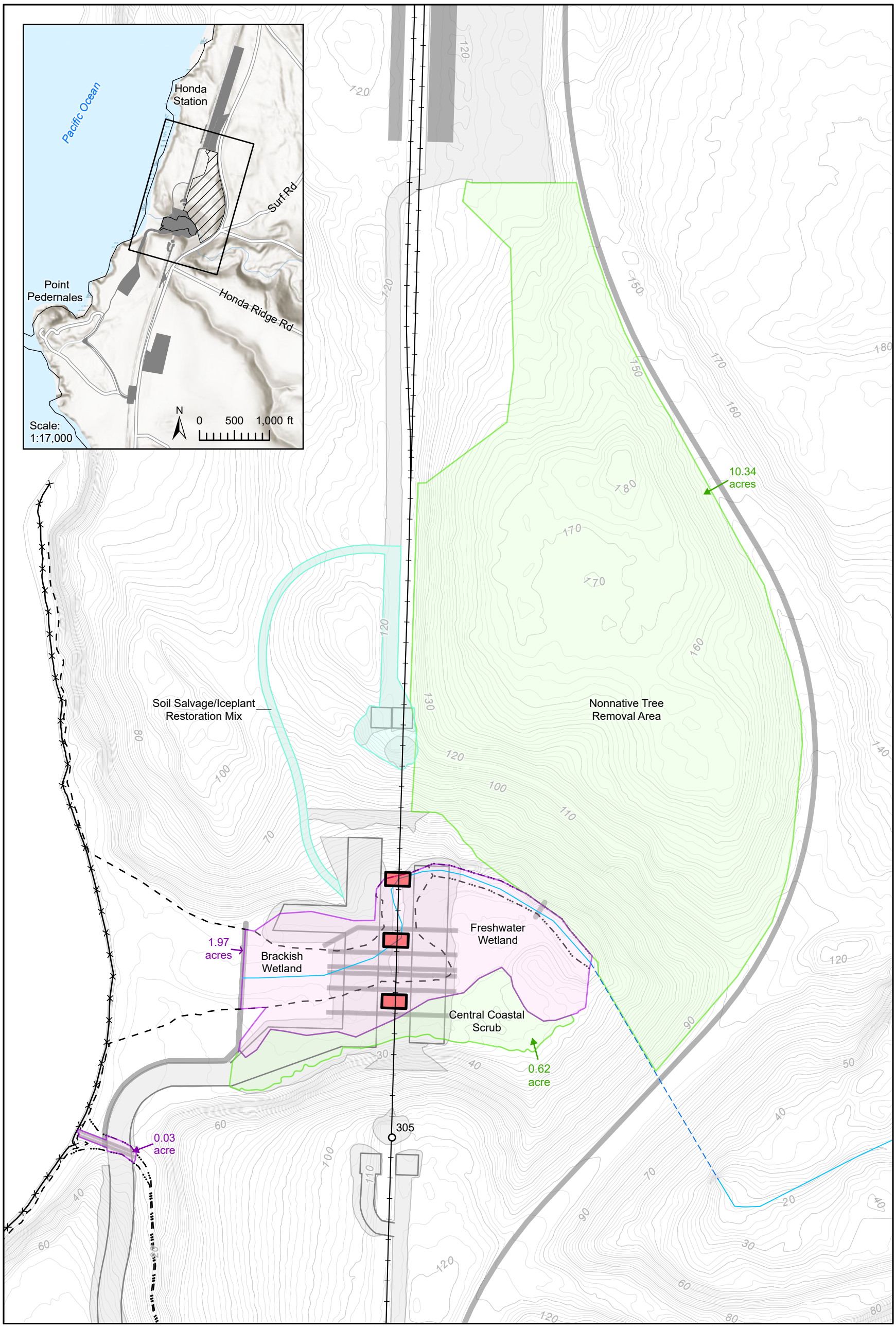
Central Coastal Scrub Mix	Iceplant Mix
Artemisia californica	*Artemisia californica*
Baccharis pilularis	*Baccharis pilularis*
Eriogonum parvifolium	*Eriogonum parvifolium*
Isocoma menziesii	*Leptosyne gigantea*
Leptosyne gigantea	*Lupinus chamissonis*
Salvia mellifera	*Lupinus arboreus*

Planting and hydroseed application would occur in the fall, between October 1 and December 21 (preferably between October 1 and November 15) to minimize supplemental water demands and optimize growth during relatively warm days in the fall. All restoration activities would be overseen by the Project Biologist to verify that planting locations are appropriate and established horticultural practices are followed.

4.4 Non-native Tree Mitigation Area

If mitigation ratios cannot be satisfied within the Honda Creek canyon floodplain for the wetland impacts, along with enhancement and restoration of disturbed upland habitats, UPRR proposes meeting mitigation requirements by watershed enhancement via removal of non-native long-leaved acacia (*Acacia longifolia*) from the north side of Honda Canyon. Trees would be cut just above ground level and stumps treated with an appropriate herbicide by a qualified applicator. The slope would then be stabilized using hydromulch and biodegradable fiber wattles, if needed, and seeded with native central coastal scrub species (Table 3) for long term revegetation and stabilization. All work would be by hand and on foot and no equipment or subsurface disturbance would occur within the acacia mitigation area.

Figure 3. Mitigation Proposed



Union Pacific Railroad -
La Cañada Honda Bridge Replacement
Map Center: 120.63529°W 34.60919°N
Santa Barbara County

Contour Interval: 2-foot

ALTHOUSE AND MEADE, INC.
BIOLOGICAL AND ENVIRONMENTAL SERVICES

Map Updated:
March 31, 2022 03:12 PM by SAF

5 MONITORING PLAN AND PERFORMANCE CRITERIA

5.1 CRLF Monitoring Plan

Honda Creek would be surveyed for CRLF using the United States Fish and Wildlife Service (USFWS) 2005 Revised Guidance on Site Assessments and Field Surveys for the CRLF and modified as described below. Surveys would be conducted during the Project and for 5 years after commencement of restoration or until Performance Standards are met. Surveys would be conducted by USFWS-approved biologists experienced with identifying all life stages of CRLF. Three visual surveys per year would be conducted and each survey would have a daytime and nighttime component. Survey areas would include pre-existing habitat within Honda Creek, temporary habitat created by Project activities, and restored habitats after Project completion.

Data collected would include the total number of CRLF egg masses, tadpoles, metamorphs, juveniles, and adults observed during each sampling session. The maximum number seen for any sampling session (day or night) per year, which represents the minimum number known to be present, would be used for comparison over time. Data regarding the type and quality of each area sampled (areas and final protocols to be determined in final restoration plans) would be recorded as per current CRLF survey recommendations by the USFWS.

5.2 Vegetation Monitoring Plan

Prior to commencement of the Project, quantitative assessments within impacted habitats would establish baseline vegetative cover and species composition. Collected data would be used in designing final restoration plans and performance standards. Once restoration starts, restored areas would be monitored during the first three years to determine weeding and watering needs. He Project Biologist would monitor work progress and consult with restoration workers to ensure plants are properly installed, irrigated, and maintained, and that problems are quickly addressed. During year one a Project Biologist would provide worker environmental training and monitor restoration work. Follow-up monitoring visits would be made on a quarterly schedule to monitor weed cover and other problems that may require adaptive management.

Once per year for 5 years, a biologist would perform quantitative monitoring in the spring or early summer to assess restoration sites. At the beginning of the restoration effort, plots would be selected within each restoration area and would be sampled annually. Monitoring Year 1 would begin on the day planting activities are completed.

Quantitative monitoring would include the following data for each survey plot:

a. % relative cover for each species
b. % relative cover for native species
c. % relative cover for non-native species
d. % dead cover
e. % substrate cover (mulch, soil, plant litter, etc.)
f. general health and stature of plants
g. signs of reproduction
h. species richness per plot

In addition to quantitative survey plots, the nonnative tree removal area would be monitored using drone imagery prior to Project initiation and the acacia extent quantified. New imagery would be acquired annually to track cover changes during the 5-year monitoring period. Additional drone imagery may be used to qualitatively assess other Project restoration areas.

Photo monitoring points would be established at each sampling location and at points that capture representative views of restoration sites. Results of quantitative monitoring would be used to judge restoration progress and photographs would show qualitative change. Maps with photo points, weed treatment areas, and locations for remediation would be prepared each year and included in annual reports.

5.3 CRLF Performance Targets

Baseline CRLF numbers and habitat usage as determined by pre-Project surveys would be used to determine successful recolonization of restored areas after Project completion. Performance targets would be considered met if CRLF are observed in numbers comparable to pre-Project levels and are observed utilizing the pre-Project habitat extent.

5.4 Vegetation Restoration Performance Targets

Vegetation cover and species richness parameters as determined by pre-Project surveys would be used to measure restoration success. Performance standards are anticipated to be met by year three (Table 4) and would be monitored through year five (anticipated to be 2029).

TABLE 5. PERFORMANCE STANDARDS

Success criteria are outlined through the first three-year monitoring period. Survival rate is the primary performance standard that would be used to determine project success.

Feature	Performance Criteria and Assessment Method	Year 1	Year 2	Year 3
Train Landscape Contractors	Biologist provides training regarding protected biological resources and target weeds for all workers who implement or maintain restoration areas.	100%	100%	100%
Plant Installation	Survival Rate	>75%	>60%	>50%
Weed Eradication	% cover of non-native weeds	<25%	<25%	<25%
Erosion Control and Water Quality (slope and streambank protection)	Rills, gullies, or sediment loads shall be repaired or removed. Repaired areas shall be protected from erosion with bio-degradable materials and/or revegetated prior to the next rain event.	As-needed	As-needed	As-needed
Willow height	Approximate the average height of patches of willows to the nearest foot.	<1 ft	2 ft	>4 ft

By year five, the following additional performance standards would be met:

1. Five years post-construction, 75% native absolute live cover within the Project area.
2. Five years post-construction, less than 15% non-native absolute live cover within the Project area.

5.5 Non-native Tree Removal Performance Targets

Baseline cover (nonnative/native) as determined by pre-Project surveys would be used to determine success of restoration within the acacia removal area. Post-restoration aerial imagery would be used to assess the percentage change in cover of acacia. Quantitative monitoring plots would be sampled pre- and post-restoration to ground truth drone data, monitor native plant establishment, and assess weed cover. Performance targets would be considered met if treatments successfully kill and remove acacia and native replacement species survive and increase during the monitoring period.

6 MAINTENANCE, SITE PROTECTION, AND FINANCIAL ASSURANCES

6.1 Maintenance

Final restoration plans will include detailed weed removal and other maintenance requirements.

- Restoration sites would be weeded one week after the first inch of rain received in the fall with emphasis on eliminating seedlings of target weeds and non-native annual grasses. This measure would be implemented in the first three years of the restoration project.
- Restoration sites would be checked for weed competition and weed control would be performed monthly during the growing season (February 1 – November 30) for the first year following installation. This would be reduced to once every six weeks for year 2, and once every other month for year 3. Weed control would be performed annually in the spring in years 4 and 5.
- Restoration sites would be checked for target weeds during monthly maintenance and treated as needed. A Project Biologist would review sites monthly during years 1 to 3 and annually during years 4 and 5 and would direct weed removal by hand, herbicide, or other established methods to encourage the growth of native species.
- Upland restoration sites would be provided with water, as needed, to maintain riparian shrubs, especially during years 1 and 2.

6.2 Site Protection

Habitat restoration areas on VSFB property would be mapped and GIS shapefiles provided to VSFB resource managers to prevent base activities or planned projects from occurring within sensitive restoration areas.

6.3 Financial Assurances

A trust fund (or equivalent) would be established by Union Pacific Railroad and managed by Althouse and Meade, Inc. to cover restoration area repairs and maintenance costs. UPRR via Althouse and Meade, Inc. would hire a landscape contractor to implement restoration and would provide a funding to maintain restored areas for five years. UPRR has budgeted on-site mitigation, maintenance, and monitoring into their construction plans for facility maintenance projects. UPRR would provide a letter of assurance that finances are committed to restore habitat impacted by railroad facility maintenance operations.

7 REPORTING REQUIREMENTS

7.1 Annual Reports

Annual reports would be provided to VSFB and UPRR by December 31 of each year following plant installation. Reports would include a summary of all completed work, monitoring visits, and all wildlife observed in the restoration areas. The adequacy of slope and stream bank protection would be monitored and reported and extent of erosion and sedimentation into Honda Creek (if any) would be documented. Reports would provide quantitative and qualitative assessments of progress in meeting performance criteria and recommend management actions as necessary. If the project is not expected to meet Year 5 performance standards, an adaptive management strategy would be implemented immediately (Section 8).

7.2 Final Report

Successful restoration and revegetation may take up to 5 years. The Year 5 final report, expected by fall/winter 2029, would summarize all data collected during the monitoring period. If Year 5 performance standards are met, the final monitoring report would include a notice of project completion.

If required performance standards are not met by Year 5, a remediation plan would be prepared for approval by VSFB, and annual monitoring of the sites would continue until successful restoration is achieved.

8 ADAPTIVE AND LONG-TERM MANAGEMENT

8.1 Vegetation

When warranted, reseeding, water application for upland shrubs, and additional restoration plantings and weeding would be implemented based on results of monitoring site visits. Recommendations for remediation such as re-planting or re-seeding would be provided to UPRR, VSFB, and the designated landscape contractor as soon as practicable following each monitoring visit.

8.2 California Red-Legged Frog

Monitoring during the first three years following restoration would define the baseline metric against which future monitoring results would be compared. Considering natural variability that may be caused by annual variations in rainfall or temperature, if a reduction in CRLF abundance is observed for at least two consecutive survey periods, results would be evaluated in a management review meeting. Adaptive management strategies may include management of predators or alteration of vegetation management techniques.

9 REFERENCES

[USFWS] United States Fish and Wildlife Service. 2005. Revised guidance on site assessments and field surveys for the California Red-Legged Frog; [cited 2022 Feb 24]. Available from: https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/Documents/crf_survey_guidance_aug2005.pdf

[WDFW] Washington Department of Fish and Wildlife. 2004. Stream habitat restoration guidelines; [cited 2022 Feb 24]. Available from: https://wdfw.wa.gov/publications/00043

APPENDIX H. THE DECLINING AMPHIBIAN TASK FORCE FIELDWORK CODE OF PRACTICE

The Declining Amphibian Task Force Fieldwork Code of Practice

A code of practice, prepared by the Declining Amphibian Task Force (DAPTF) to provide guidelines for use by anyone conducting field work at amphibian breeding sites or in other aquatic habitats. Observations of diseased and parasite-infected amphibians are now being frequently reported from sites all over the world. This has given rise to concerns that releasing amphibians following a period of captivity, during which time they can pick up unapparent infections of novel disease agents, may cause an increased risk of mortality in wild populations. Amphibian pathogens and parasites can also be carried in a variety of ways between habitats on the hands, footwear, or equipment of fieldworkers, which can spread them to novel localities containing species which have had little or no prior contact with such pathogens or parasites. Such occurrences may be implicated in some instances where amphibian populations have declined. Therefore, it is vitally important for those involved in amphibian research (and other wetland/pond studies including those on fish, invertebrates and plants) to take steps to minimize the spread of disease and parasites between study sites.

1. Remove mud, snails, algae, and other debris from nets, traps, boots, vehicle tires and all other surfaces. Rinse cleaned items with sterilized (e.g. boiled or treated) water before leaving each study site.

2. Boots, nets, traps, etc., should then be scrubbed with 70% ethanol solution (or sodium hypochlorite 3 to 6%) and rinsed clean with sterilized water between study sites. Avoid cleaning equipment in the immediate vicinity of a pond or wetland.

3. In remote locations, clean all equipment as described above upon return to the lab or "base camp". Elsewhere, when washing machine facilities are available, remove nets from poles and wash with bleach on a "delicates" cycle, contained in a protective mesh laundry bag.

4. When working at sites with known or suspected disease problems, or when sampling populations of rare or isolates species, wear disposable gloves and change them between handling each animal. Dedicate sets of nets, boots, traps, and other equipment to each site being visited. Clean and store them separately and the end of each field day.

5. When amphibians are collected, ensure the separation of animals from different sites and take great care to avoid indirect contact between them (e.g. via handling, reuse of containers) or with other captive animals. Isolation from un-sterilized plants or soils which have been taken from other sites is also essential. Always use disinfected/disposable husbandry equipment.

6. Examine collected amphibians for the presence of diseases and parasites soon after capture. Prior to their release or the release of any progeny, amphibians should be quarantined for a period and thoroughly screened for the presence of any potential disease agents.

7. Used cleaning materials (liquids, etc.) should be disposed of safely and if necessary taken back to the lab for proper disposal. Used disposable gloves should be retained for safe disposal in sealed bags.

APPENDIX I. CONCEPTUAL DE-WATERING PLAN (WADSWORTH 2021)

Dewatering Procedures



Ralph L Wadsworth Construction Company

Dewatering

Work Plan:

SCOPE OF WORK

Description of Work
1. **Mobilization:** After verifying and locating any buried or overhead utilities, Ralph Wadsworth will bring in all equipment necessary to accomplish the work. The installation of the sheet piles and the dewatering wells will occur concurrently. Excavation will follow with hauling spoils offsite to the south staging area. 2. **Dewatering:** The static water level at will be brought down 1' below bottom of excavation using dewatering gravity wells. The wells will be drilled to the required depth of utilizing the bucket- auger drill method to advance the boreholes. The borehole will be kept full of water during drilling to provide a reverse drilling head which will keep the borehole from collapsing; the diameter for each of the wells will be 24". 3. **Dewatering Monitoring:** authorized biological monitors must be on site at all times during active dewatering and that they need to check the status of all dewatering sites at least once a week (more during peak construction activities) – e.g. several times daily, but during peak construction, a biological monitor is expected on site at all times. 4. **Sheet Piles:** Sheet piles will be used as the excavation support, once the sheets are in place the excavation will start. The sheet piles will be installed using one crane with vibro attachments. Sheets will be vibrated into the ground in pairs. Vibration limits to be determined by RLW and the owner. 5. **Excavation:** The excavation will follow the sheet pile installation.

1.) Dewatering Procedures

Step 1: Drilling Dewatering Wells

Drill Preparation: Take a moment to identify drill hazards and its safe operation. Perform inspection on equipment and allow warm-up time if overnight temps are below freezing, cycle all hydraulics to ensure no leaks are present, grease all fittings. Communicate with drill helpers and have casing, drill rods ready.

Drilling: Receive drilling layout and instructions from the superintendent and move drill to locations, always use a spotter when moving around the jobsite. Verify tooling on drill and coordinate with drill helpers. Set up on hole and identify hole depth, angles required using smart level or other equipment. Document hole

details in drill log and material encountered. Wells will be drilled up to 12' (based on current design-60% Drawings) deep with an estimated hole diameter of 24".

Step 2: Pumping System

Well Pumping System: Submersible pumps within each well, discharge pipe/hose routed to a frac tank setup if frac tank is required, once the water runs through nthe process of the frac tank it will be discharge to the main discharge water line.
If frac tank is not required discharge pipes/hoses from sheet pile cells wells will be connected to our main discharge water line that will be directed to the west side of the project past the sea wall.

Deep Well Removal & Demobilization: Upon completion of the dewatering, the well system will systematically be put out of service and removed.

Hold point	- Verify all utilities in area, if you don't know, don't drill! - Pre-trip drill to ensure its safe and efficient function - Double check hole alignment

Specification Summary

- All utilities must be potholed and visually located prior to drilling
- Minimum hole diameter is 24"

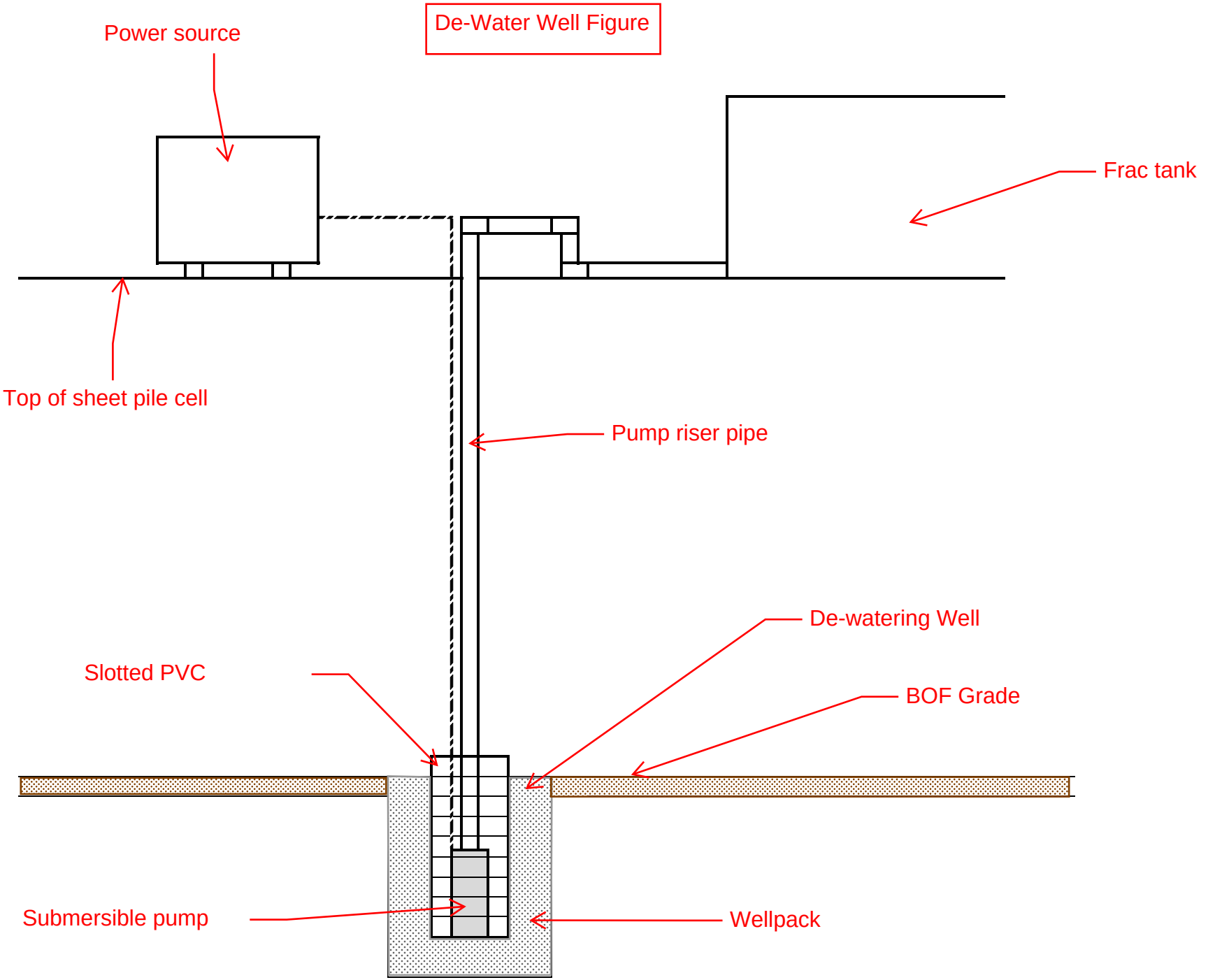
Quality Risks (QR)

- Drill malfunction
- Incorrect drill tooling
- Incorrect drill angle, skew, depth
- Accidental damage to underground utilities

Dewatering

Work Plan:

Quality Risk Prevention (QRP)
• Pre-trip prior to shift and document any issues and inform superintendent or mechanic. • Verify hole diameter and tooling prior to drilling • Double check angles with smart level • Visually verify all underground utilites before drilling


De-Water Well Figure
Power source
Frac tank
Top of sheet pile cell
Pump riser pipe
De-watering Well
Slotted PVC
BOF Grade
Submersible pump
Wellpack

APPENDIX C. BIOLOGICAL OPINION (SEPTEMBER 23, 2022)

United States Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Ecological Services
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

IN REPLY REFER TO:
2022-0027813-S7

September 23, 2022

Beatrice L. Kephart
30 CES/CEI
1028 Iceland Avenue
Vandenberg Space Force Base, California 93437

Subject: Biological Opinion on the Union Pacific Railroad Milepost 304.88 La Cañada Honda Bridge Replacement Project at Vandenberg Space Force Base, Santa Barbara County, California

Dear Beatrice Kephart:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the U.S. Space Force's (Space Force) proposed authorization of the Union Pacific Railroad Company (UPRR) to replace the existing La Cañada Honda Bridge (Honda Bridge) with a new railroad bridge on Vandenberg Space Force Base (VSFB), Santa Barbara County, California and its effects on the federally endangered beach layia (*Layia carnosa*) and the federally threatened California red-legged frog (*Rana draytonii*), in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 et seq.). We received your April 1, 2022, request for formal consultation on April 4, 2022.

We have based this biological opinion on information that accompanied your biological assessment (Althouse and Meade 2022) and further coordination between Space Force and Service staff. These documents, and others relating to the consultation, are located at the Ventura Fish and Wildlife Office.

Not Likely to Adversely Affect Determination

The Space Force's request for consultation also included the determination that the proposed action may affect but is not likely to adversely affect the federally endangered tidewater goby (*Eucyclogobius newberryi*).

Tidewater Goby

The proposed project would replace the existing Honda Bridge with a new railroad bridge which crosses Honda Canyon and Honda Creek at UPRR Mile Post 304.88 within the South Base of VSFB. Habitat degradation from project activities has the potential to affect tidewater goby in the vicinity of the project area.

Tidewater gobies occur only in California along the coast from the Smith River near the Oregon border to Agua Hedionda Lagoon in San Diego County (Service 2005a, p. 6). The nearest occurrences to the project area are in Jalama Creek (CNDDB #59), approximately ten miles to the southeast, and the Santa Ynez River (CNDDB #58), approximately six miles to the north (CDFW 2021, as cited in Althouse and Meade 2022, p. 27). The species historically occurred in Honda Creek where surveys first detected it in 1995 (Lafferty et al. 1999 as cited in Althouse and Meade 2022, p. 27). Surveys detected tidewater goby again in 2001 but seine net surveys in 2008, 2015, 2016, and 2017 did not detect any tidewater gobies and biologists presume the species to be extirpated from Honda Creek (Althouse and Meade 2022, p. 27). The Honda Creek estuary lagoon historically remained full through the summer but completely dried up in 2013 and did not refill again until winter of 2016 to 2017. Since 2017, the lagoon has dried up each year during the summer months rendering habitat unsuitable for tidewater goby recolonization (Althouse and Meade 2022, p. 27).

For the subject project, biologists conducted four protocol-level California red-legged frog surveys (two days and two nights) in Honda Creek from the Coast Road culverts to Honda Beach as well as two additional observations during non-protocol site visits. During these surveys, biologists also visually searched for tidewater gobies and did not detect any tidewater gobies or other fish species within Honda Creek. However, it is possible that the species may re-establish in Honda Creek from the Santa Ynez River following a significant rain event.

Avoidance and Minimization Measures

- The UPRR will require best management practices (BMPs) for minimizing introduction of pollutants into the environment, described below under section *Avoidance and Minimization Measures* (AM-11, 14 through 18, and 23).
- The UPRR will require BMPs for minimizing introduction of sediments into waterways including developing a Storm Water Pollution Prevention Plan (SWPPP) in compliance with a California State Water Resources Control Board General Permit for Discharges of Stormwater Associated with Construction Activity, described below under section *Avoidance and Minimization Measures* (AM-5, 10, 12, and 13).
- The UPRR will require BMPs for cleaning equipment and vehicles to prevent invasive plant, animal, and pathogen spread while performing work as well as post-project invasive species monitoring and removal, described below under section *Avoidance and Minimization Measures* (AM-19).

- The UPRR will not apply herbicide within Honda Creek. The Space Force will ensure any adjacent herbicide usage will not present the potential for exposure to California red-legged frog or their habitat (Evans, R., Space Force, pers. comm. 2022a; AM-8).
- The UPRR will, at a minimum, restore all temporarily disturbed upland areas, including temporary access roads, to their pre-project conditions (see section *Habitat Mitigation and Monitoring Plan* and AM-7 and 24 for further details).

If tidewater gobies are present and/or breeding, potential effects from construction activities include inadvertent contamination of the waterway from vehicular leaks or improper maintenance, debris falling into the river, sedimentation, and increased turbidity. Construction-related chemicals (fuels, lubricants, wastes) accidentally introduced into the water or allowed to accumulate in stream soils could affect water quality in Honda Creek which may be hazardous to tidewater gobies. Debris falling into the river may also degrade water quality. Sedimentation that could occur during construction activities may result in tidewater goby injury, death, and lowered breeding success. Sediment may affect tidewater gobies by impairing the efficiency of their gill filaments and exposing them to higher salinities and/or predation as they flee downstream. Direct effects of sedimentation include mortality, reduced physiological function, and burrow smothering. Indirect effects of sedimentation include potential alteration to the food web which could create cascading effects to higher trophic levels. A reduction in phytoplankton can result from increased turbidity, which can thereafter reduce zooplankton, in turn reducing benthic macroinvertebrates, and thus reduce prey available to tidewater gobies (Henley et al. 2000, p. 129). Finally, construction equipment and materials that have the potential to contribute pollutants to storm water discharges include vehicle fluids (e.g., oil, grease, petroleum, coolants, etc.), raw landscaping materials and wastes (e.g., plant materials, etc.), and general litter. These materials may injure or kill tidewater gobies if they enter the lagoon.

In addition to the measures above, the UPRR will further minimize impacts to tidewater goby by collecting baseline water quality measurements prior to the start of project activities and subsequently monitoring water quality for the duration of the project (AM-10). The UPRR will implement appropriate erosion, sediment, and pollution control measures to minimize potential runoff and prevent spills from affecting aquatic habitat (AM-12 through 16, 23); however, they will also develop a contingency plan for recovery of tidewater goby and other aquatic wildlife in the unlikely event of a local toxic spill or accidental dewatering (AM-11). The UPRR will mark the edge of riparian vegetation and boundaries of the project and work areas on all construction plans and will fence riparian vegetation outside of the project area for avoidance and leave undisturbed (AM-17, 18). A Service-approved biologist will be present at all times during active dewatering and will check the status of all dewatering sites at least once a week (more during peak construction activities) (AM-5). The UPRR will design any alterations to riparian habitat to minimize impacts to existing habitat and will restore all impacted habitat to its prior condition or better upon completion of the project (see section *Habitat Mitigation and Monitoring Plan* and AM-7 and 24 for further details).

After reviewing the information provided, we concur with your determination that the proposed action may affect but is not likely to adversely affect the tidewater goby. Any effects that would occur to the species would be considered discountable. Our concurrence is based on the following:

1. Surveys have not detected tidewater goby in Honda Creek since 2001.
2. The UPRR will continue to monitor for tidewater goby as part of their on-going monitoring efforts to alert them of any new individuals in the project area.
3. Minimization measures would limit impacts to riparian habitat in the event of future tidewater goby re-colonization.

Our concurrence with the determination that the proposed action is not likely to adversely affect tidewater goby is contingent on the measures outlined above being implemented. If the Space Force fails to ensure implementation of these measures, we will consider our concurrence invalid. If the proposed action changes in any manner or if new information reveals the presence of listed species in the project area, you should contact our office immediately and suspend all project activities until the appropriate compliance with the Act is completed.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Project Overview

The Space Force proposes to authorize the UPRR to replace the existing Honda Bridge with a new railroad bridge. Built in 1898, the existing steel supports have corroded and deteriorated, rendering the bridge in need of replacement due to its safety risk. It supports up to six passenger and two freight service routes daily. Honda Bridge is located within the South Base of VSFB, along the northwestern coast of Santa Barbara County, approximately 9 miles southwest of the City of Lompoc, California. The existing bridge crosses Honda Canyon and Honda Creek at UPRR Mile Post 304.88, Santa Barbara Subdivision. The proposed action consists of three components:

1. Bridge replacement;
2. Construction and temporary staging; and
3. Fiber optic relocation and replacement.

Although Honda Bridge is on UPRR property, most bridge replacement activities, including construction, temporary staging, and fiber optic relocation are on VSFB property. The proposed action would span 21 months with the UPRR starting the project February 1, 2023 and completing the project by October 10, 2024. This biological opinion is based on the most recent Bridge Plan provided by HDR, Inc. to the Space Force on October, 29, 2021, which was at 60

percent design completion (Althouse and Meade 2022, p. 8). The Service analyzed effects under this design and assumes the following plans will remain the same through design completion.

Construction

Bridge Replacement

The UPRR would remove the existing bridge and construct a new bridge that would be approximately 541.6 feet in length. Five new steel towers (7 feet in diameter) would support the new bridge deck (surface of bridge), anchored by below-ground steel piles and casing. Concrete pile caps (stabilizing structure located at the bottom of the columns on the ground) would cover the underground steel piles and casing. Within the Honda Creek waterway, the UPRR would remove three existing steel towers but keep their respective pedestals (below-ground stabilizing structure) which may provide scour pools for California red-legged frog habitat. Within upland habitat, the UPRR would keep an additional eight pedestals and two abutments (used at the end of bridges to retain the embankment).

Access Improvements and Temporary Staging

Project construction activities would require access improvements and temporary staging areas consisting of eight areas: four access road areas, two previously disturbed laydown areas, a crane pad and lower causeway construction area, and a laydown/office area (Figure 1). Additional access improvement and staging components that do not impact the species are detailed in the biological assessment (Althouse and Meade 2022, pp. 8–13). To dewater the construction site, the UPRR would use dewatering gravity wells which they would remove after project completion. The UPRR would only perform night construction requiring night lighting during a two-week closure when they would replace the bridge deck, planned for the summer of 2024 (Evans, pers. comm. 2022b). The UPRR would not install any new permanent lighting (Evans, pers. comm. 2022b).

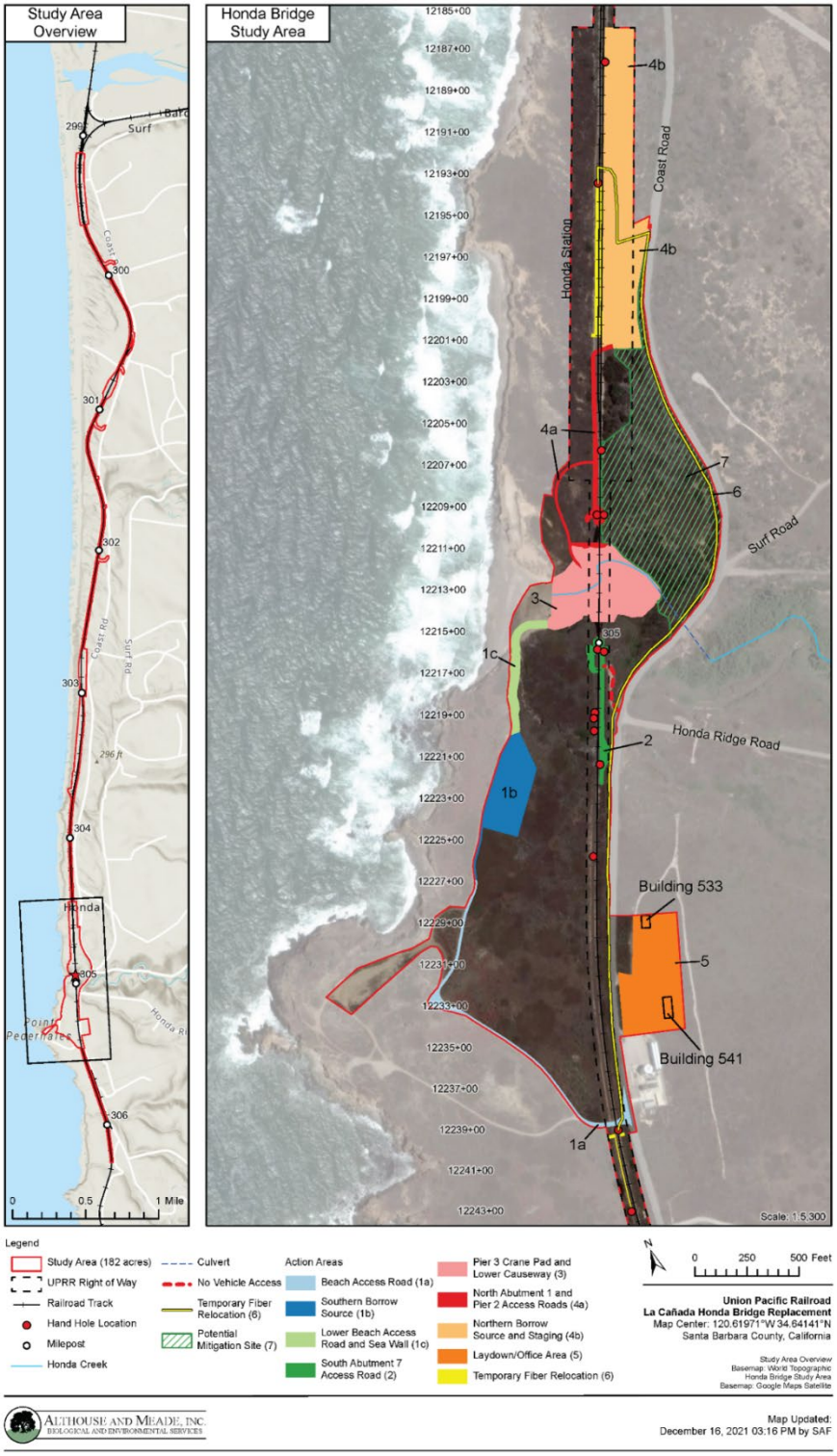


Figure 1. Locations of proposed project activities within the South Base of VSFB.

Construction Equipment

Below-ground steel piles would anchor all 5 concrete piers (as described under *Bridge Replacement*) which the UPRR would install using a single-acting diesel hammer. In addition, the UPRR would install temporary sheet pile storm protection to protect the project area from tidal influence and variable wave action using a hydraulic vibratory driver/extractor. The UPRR would use pile-driving equipment for approximately 12 to 14 weeks with 1-to-2-day gaps between steel pile and sheet pile locations.

Fiber Optic Relocation and Replacement

An existing fiber optic line is located along UPRR property which the UPRR would temporarily relocate prior to the start of bridge construction (6, Figure 1). To temporarily relocate the fiber optic lines, the UPRR would cut and reroute approximately 5,215 feet of line above-ground within protective conduit except at driveway crossings where the UPRR would temporarily bury lines along the west shoulder of Coast Road. The temporary fiber conduit would lay on previously disturbed/cleared road shoulder approximately 8 feet from the asphalt roadbed or the UPRR would secure the conduit to the guard rail between the site of the historic Honda Station north of the bridge and the existing beach access road. Mowing would impact an approximately 6-foot-wide strip (approximately 0.6-acre) along the western shoulder of Coast Road. For further protection, the UPRR would place K-rail, or a similar roadway barrier, along the shoulder of the road to prevent accidental impacts to the fiber optic conduit.

The temporary reroute would also require two jack and bore pits (an underground boring method) to reroute fiber on the coast-side of the track: one adjacent to the track at Honda Station and one approximately 25 feet by 15 feet and 7 feet deep. Additionally, the UPRR would place a new permanent ground-level access opening at the Honda Station jack and bore pit to allow fiber carrier access. On the inland side of the tracks, within the bounds of Honda Station, shallow trenching would be necessary along the historic trench alignment to connect temporary fiber lines at the intersection of the reroute location.

Upon completion of the bridge, the UPRR would route 7 miles of new fiber optic conduit and cables through the existing access openings. Minimal ground disturbance would occur at existing access opening locations and access trails; however, potential problem areas between access openings on both sides of the track may require additional excavations (approximately 3 feet by 5 feet and up to 5 feet deep) to expose conduit, all of which would occur along the historic trench alignment (Figure 1, see *Study Area Overview* panel).

AVOIDANCE AND MINIMIZATION MEASURES

The following protection and monitoring measures would apply to all aspects of the proposed action to protect and minimize effects on biological resources. The Space Force will ensure the UPRR takes all identified applicable actions as listed below.

Species-specific Avoidance and Minimization Measures

Beach Layia

AM-1. A qualified biologist will survey potential beach layia habitat within and adjacent to the project area (including central dune scrub, central dune scrub/iceplant, and iceplant north of Honda Canyon) on an annual basis during the appropriate season. Prior to any ground disturbing activities, the Space Force will map and fence known beach layia occurrences for avoidance using high visibility construction and silt fencing (Evans, pers. comm. 2022b) that will remain in place for the duration of the project.

AM-2. In the event that project activities impact beach layia occupied habitat, the Space Force will require that a qualified biologist collect available beach layia seed after the species senesces where construction activities will impact occupied habitat (Evans, pers. comm. 2022b). The Space Force will properly store beach layia seed in paper bags under cool, dry conditions. The Space Force will require that a qualified biologist monitor a bulldozer equipped with a flat scraper that will preserve any dormant beach layia seedbank within the impacted area by lightly scraping the first 3 inches of topsoil. The Space Force will then immediately relocate topsoil to a nearby location with similar quality suitable habitat outside of the proposed project disturbance footprint. The Space Force will seed the same topsoil relocation site with previously collected beach layia seed and a native central dune scrub seed mix approved by a 30 CES botanist. The Space Force will prevent weed infestation within the topsoil relocation site and monitor site success for a period of 5 years.

AM-3. The UPRR will not apply herbicide near beach layia habitat (Evans, pers. comm. 2022b). The UPRR may use herbicides in the *Non-Native Tree Mitigation Area* (see section below) but will apply via spot application to target plants. The UPRR will not employ broadcast application, nor will they use pre-emergent herbicides.

California Red-legged Frog

AM-4. Prior to start of construction activities, the UPRR will install ERTEC wildlife exclusion fencing (or equivalent) to exclude California red-legged frogs from the project area during construction. The UPRR will open these fences during inactive construction periods to prevent entrapment of frogs and other wildlife.

AM-5. Service-approved biologist(s) will be present on site during all construction activities occurring in California red-legged frog habitat, including during active dewatering.

a. Prior to the start of daily construction activities in the riparian zone, Service-approved biologist(s) will survey the work sites for California red-legged frogs, checking beneath all parked vehicles and heavy equipment before project activities commence.

b. If biologist(s) observe a California red-legged frog within a designated work area and construction activities cannot avoid it, all work will stop in the immediate area (within 164 feet of the individual) until a Service-approved biologist(s) can relocate the California red-legged frog or until it has left the work area of its own accord.

c. Service-approved biologist(s) will relocate California red-legged frogs captured during surveys or construction activities to the nearest suitable habitat outside of the project area but within the Honda Creek watershed and no more than 2 miles from the capture site. Service-approved biologists may only capture California red-legged frogs by hand or dip net and transport in buckets separate from other species and other California red-legged frog life stages. When capturing and removing California red-legged frogs from the project area, the Service-approved biologist(s) must minimize the amount of time they hold individuals in captivity. In addition, Service-approved biologist(s) must maintain California red-legged frogs in a manner that will not expose them to extreme temperatures or any other environmental conditions that could cause injury or undue stress.

d. The Space Force will follow the Declining Amphibian Populations Task Force fieldwork code of practice to avoid conveying diseases between work sites (DAPTF 1998).

e. Service-approved biologist(s) will check the status of all dewatering sites at least once a week and more often during peak construction activities.

AM-6. The UPRR will remove all trash from the site daily or secure in a predator-resistant container to reduce the likelihood of attracting potential California red-legged frog predators to the work site.

AM-7. Prior to commencement of construction, the UPRR will prepare and implement a *Habitat Mitigation and Monitoring Plan* (see section below). The UPRR will mitigate impacts to California red-legged frog habitat at a 2:1 ratio of creation or enhancement (area of created or enhanced habitat to impacted habitat). Restoration and enhancement activities will include planting appropriate native species, returning Honda Creek and adjacent wetlands and uplands to pre-project conditions, and/or providing habitat enhancement through the creation of additional habitat along lower Honda Creek.

AM-8. The UPRR will not apply herbicide within Honda Creek in California red-legged frog habitat. The Space Force will ensure any adjacent herbicide usage will not present the potential for exposure to California red-legged frog or their habitat (Evans, pers. comm. 2022a).

General Project Avoidance and Minimization Measures

AM-9. Qualified biologists will brief all project personnel prior to their participating in construction activities. At a minimum, the briefing will include a description of the project components and techniques, a description of the listed species occurring in the project area, and the general and specific measures and restrictions to protect the species during implementation of the project.

AM-10. The UPRR will measure water quality parameters including pH and turbidity during normal flow events prior to the commencement of the project to determine baseline conditions. Measurements will occur throughout the project's duration and the UPRR will maintain water quality at or above pre-project levels. The UPRR will conduct visual water quality assessments daily during active work that may affect water quality. During concrete installation, the UPRR will monitor pH daily and/or during a pour if standing water is present in or adjacent to the concrete area.

AM-11. The Space Force will develop a contingency plan for the recovery and salvage of California red-legged frogs and other sensitive wildlife in the event of a local toxic spill or accidental dewatering of their respective habitats. This plan will include specific biological monitoring requirements and detail the required response in the case of a spill into flowing or standing water or accidental dewatering.

AM-12. The UPRR will utilize appropriate best management practices at the site to prevent sediment and/or pollution from entering Honda Creek. Erosion control measures will include both temporary and permanent protection, including but not limited to installation of silt fences, straw wattles, erosion control fabrics, and hydroseeding. The UPRR will prepare and implement a Storm Water Pollution Prevention Plan (SWPPP).

AM-13. The UPRR will prepare a dewatering plan prior to construction; the biological assessment provided a conceptual dewatering plan (Althouse and Meade 2021, Appendix I). The UPRR will contain wet spoils removed from the drill holes in above-ground, bermed structures to prevent dirty water from entering Honda Creek. The UPRR will pump water into a container, such as a Baker tank or equivalent, and may use water and/or non-toxic dust palliative for dust control. The UPRR will test captured excess water for water quality per Regional Water Quality Control Board Region 3 standards. If filtered water quality is at or above Honda Creek water quality, the UPRR may discharge water to Honda Creek in a manner that does not increase turbidity in the creek (e.g., through a vegetated filter). Biological monitoring will include additional patrols of banks and isolated pools and turbidity testing in Honda Creek.

AM-14. The UPRR will properly store and manage hazardous materials in secured areas located outside of the Honda Creek riparian corridor.

AM-16. The UPRR will stage, refuel, and maintain mobile equipment at least 500 feet outside of the Honda Creek riparian corridor. The UPRR will stage large equipment (e.g., cranes) adjacent to the bridge on crane pads, outside of the live stream. The UPRR will place spill containment materials around all equipment before refueling. The UPRR will outfit stationary equipment (e.g., cranes) with drip pans and hydrocarbon absorbent pads.

AM-17. If it is necessary to refuel or repair immobile equipment within the riparian corridor, the UPRR will place spill containment materials around the equipment and a qualified biologist will be present to document protection of water quality and biological resources.

AM-18. On all construction plans, the UPRR will display the edge of riparian vegetation and boundaries of the project and work areas.

AM-19. During construction, the UPRR will fence riparian vegetation outside of the project area for avoidance and leave undisturbed.

AM-20. The UPRR will clean all equipment and vehicles (trucks, bulldozers, cranes, etc.) of seeds and/or mud and must remove and clean any skid plates prior to arrival on VSFB. Prior to site activities, the UPRR will brief all contractors and personnel on vehicle cleanliness policies. Upon arrival, the UPRR will inspect all new equipment and vehicles for weed seeds and caked mud and will require vehicles with weed seeds and/or caked mud to undergo off-site cleaning at a dedicated vehicle washing station. The UPRR will maintain a vehicle checklist and will record all inspection results and will clean equipment on site of weed seeds frequently, especially wheels, undercarriages, and bumpers.

AM-21. The UPRR will install construction fencing along the outer edge of the project area to protect adjacent habitats from incidental impacts.

AM-22. An environmental monitor will be present during any vegetation disturbance (including but not limited to mowing, trimming, clearing, or grubbing), and any ground disturbing activities (including but not limited to road, causeway, or crane pad construction). The environmental monitor will document compliance with all best practices and environmental compliance items for the project. The environmental monitor will be qualified to move wildlife from the project area as needed (but would only move California red-legged frogs if Service-approved).

AM-23. The UPRR will properly use all hazardous materials required to operate and maintain construction equipment in accordance with the manufacturer's specifications.

AM-24. The UPRR will develop and follow an approved spill prevention plan, including procedures to ensure that personnel maintain all equipment properly, equipment is free of leaks, and all necessary repairs incorporate proper spill containment.

AM-25. The UPRR will, at a minimum, restore all temporarily disturbed upland areas, including temporary access roads, to their pre-project conditions (see section *Habitat*

Mitigation and Monitoring Plan and AM-7 for further details):

a. The UPRR will seed impacted central coastal scrub with at least six species (as local material is available) listed in Appendix A and may include seeds collected from additional species in the area.

b. The UPRR will seed impacted central dune scrub with at least six species (as local material is available) listed in Appendix A and may include seeds collected from additional species in the area.

c. The UPRR will seed areas impacted from acacia (*Acacia longifolia*) and iceplant (Carpobrotus spp.) removal with species listed in Appendix A as determined by soil and nearby native species composition to restore impacted areas to a condition that approximates habitat prior to acacia and iceplant introduction.

d. The UPRR will conduct weed control within all restored areas for 5 years.

Habitat Mitigation and Monitoring Plan

The UPRR proposes to restore temporary impacts and enhance habitat within the Honda Creek watershed. The following conceptual mitigation plan provides a restoration and revegetation design for impacted wetlands and waters in Honda Creek and upland habitats located elsewhere in the project area (Figure 2). The UPRR will consult with 30 CES biologists to develop a final Compensatory Mitigation and Monitoring Plan (CMMP) in coordination with the Service, which the UPRR will implement upon completion of the new bridge, expected in fall of 2024. Additional components regarding individual species monitoring plans, performance targets, and maintenance activities are detailed in the biological assessment (Althouse and Meade, Appendix G, pp. 12–16).

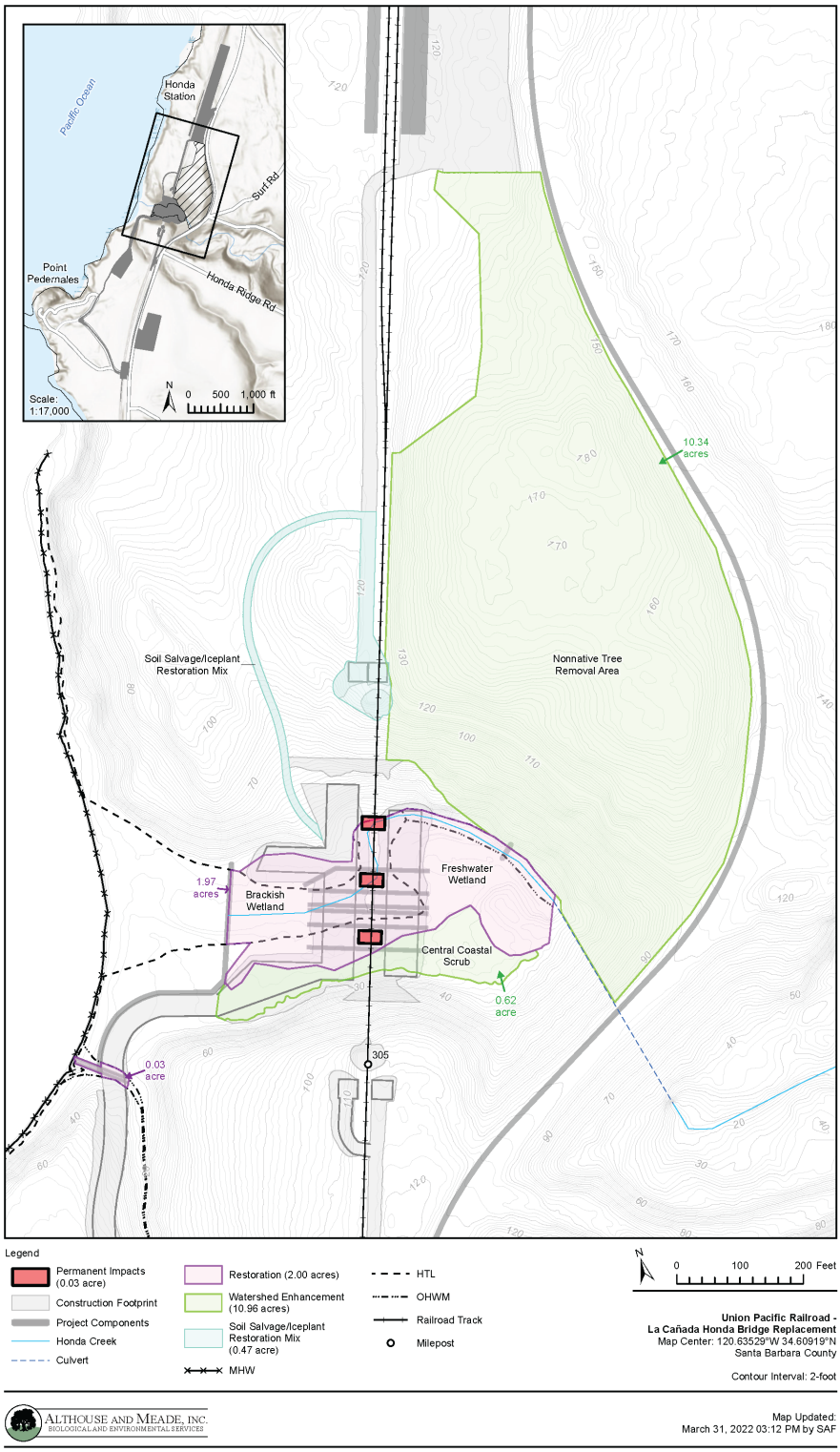


Figure 2. Locations of proposed mitigation activities within the Honda Creek watershed.

Wetlands and Waters

In coordination with 30 CES biologists, the UPRR will remove all temporary fill and restore the Honda Creek channel, flood plain contours, and associated vegetation. The UPRR will remove non-native vegetation, restore native species, and return all impacted habitats to their pre-project conditions or better (Figure 2). The CMMP will incorporate Honda Creek flow models and potential tidal and storm wave/surge data to create resilient habitat that would survive a 25-year flood event (Althouse and Meade 2022, Appendix G, p. 8).

The UPRR will mitigate impacts to California red-legged frog habitat at a 2:1 ratio of creation or enhancement (area of created or enhanced habitat to impacted habitat; AM-7). Restoration and enhancement activities will include planting appropriate native species, returning Honda Creek and adjacent wetlands and uplands to pre-project conditions, and/or providing habitat enhancement through the creation of additional habitat along lower Honda Creek (AM-7). The UPRR may enhance habitat within Honda Creek by adding rock weirs to create pool habitats between Coast Road and Honda Bridge. Staggered rock barriers would allow water to flow freely while creating a mix of shallow and deep water beneficial to a variety of organisms (WDFW 2004, as cited in Althouse and Meade 2022, Appendix G, p. 8). The UPRR will leave four existing concrete bridge pedestals in place to create scour pools that provide habitat for all life stages of California red-legged frog as well as other aquatic organisms.

The UPRR will replant native species in restored habitats once they remove temporary causeways and complete creek bed recontouring. Revegetation may use a mix of salvaged plants, live stakes, container stock grown from local material, and distribution of appropriate seed mixes (Appendix B) to restore and enhance riparian habitat. To prevent transfer of non-native plants and potential California red-legged frog pathogens, the UPRR may salvage impacted wetland plants from Honda Creek prior to construction and maintain on site until restoration activities commence rather than import from other areas.

During mitigation implementation, soil stabilization methods may include willow pole plantings, seed mixes, hydromulch, biodegradable fiber wattles, granular filter, grade-control structures, and rock riprap. The UPRR will conduct planting and hydroseed application between October 1 and December 31 to minimize supplemental water demands and optimize growth during relatively warm days in the fall. The UPRR in coordination with the Space Force will designate a Project Biologist that will oversee all restoration activities to verify that planting locations are appropriate and that personnel follow established horticultural practices.

Pool Creation

The UPRR will create a string of three (potentially four) pools approximately 3 feet to 4 feet deep on what is currently floodplain habitat southwest of the culvert outfalls. The three pools, approximately 20 feet in diameter, will total 1,100 square feet of inundated area in a normal year

surrounded by wetland habitat suitable to provide California red-legged frog cover from predators.

Upland Habitats

The UPRR will return impacted upland habitats to their pre-project conditions or better. The UPRR will recontour all borrow sites, remove all temporary fill, and revegetate disturbed habitats with salvaged topsoil (if applicable) or appropriate seed mixes (Appendix B). South of Honda Canyon, the UPRR will stabilize central coastal scrub using a combination of hydromulch, biodegradable fiber wattles, and seeding with native species (Appendix A). North of Honda Canyon in potential beach layia habitat, the UPRR will salvage topsoil prior to project disturbance if project activities impact beach layia occupied habitat (AM-2). The UPRR will stockpile soil onsite and clearly sign and fence the area for avoidance using high visibility and silt fencing that will be in place for the duration of the project (AM-2). The UPRR may salvage topsoil using hand tools or construction equipment and store until restoration begins (AM-2). The UPRR will cover stockpiles with coconut fiber, jute, or other biodegradable erosion control surrounded by biodegradable fiber wattles (Evans, pers. comm. 2022b). Potential topsoil relocation habitat will include areas near known occurrences that have exposed topsoil and/or native annuals, pending consideration of protected cultural resources in the vicinity (Evans, pers. comm. 2022b). The Space Force will examine appropriate locations in coordination with the Service and the UPRR if project activities impact beach layia occupied habitat. The UPRR will not salvage topsoil from disturbed areas infested with iceplant or other non-native plants. If needed, the UPRR expects to salvage soil in August of 2023 and will replace soil in August/September of 2024 (Evans, pers. comm. 2022b).

The UPRR will mitigate any disturbance to beach layia habitat at a 2:1 ratio and will monitor and treat mitigation areas for non-native species for 5 years (AM-2). Treatment may include hand-weeding or other manual methods; the UPRR will not use herbicides (AM-3). The UPRR will restore impacted upland areas dominated by non-native vegetation, such as iceplant, to a condition beneficial to sensitive plant and animal taxa. Appendix A includes seed mixes that the UPRR will use in central coastal scrub restoration south of Honda Canyon and mixes in sandy iceplant-dominated areas north of the canyon. The UPRR will consult with 30 CES biologists, in coordination with the Service, to develop final restoration plans for such habitats.

The UPRR will order seeds, if necessary, at the start of the project to ensure they are available once restoration begins. Planting and hydroseed application will occur between October 1 and December 31 to minimize supplemental water demands and optimize growth during relatively warm days in the fall. The designated Project Biologist will oversee all restoration activities to verify that planting locations are appropriate and that personnel follow established horticultural practices.

Non-Native Tree Mitigation Area

If the UPRR cannot satisfy mitigation ratios required under other permits as described above, the UPRR will meet mitigation requirements by watershed enhancement via removal of non-native acacia (*Acacia longifolia*) from the north side of Honda Canyon. The UPRR will cut trees just above ground level and treat stumps with an appropriate herbicide by a qualified applicator (AM-3). The UPRR will then stabilize the slope using hydromulch and biodegradable fiber wattles, if needed, and seed with native central coastal scrub species (Appendix A) for long-term revegetation and stabilization. The UPRR will conduct all work by hand and on foot; no equipment or subsurface disturbance will occur within the acacia mitigation area.

Adaptive Management

If the UPRR does not meet performance standards required under other permits by year 5, the UPRR will prepare a remediation plan for approval by the Space Force and the Service and will continue annual monitoring of the sites until they achieve successful restoration. When warranted, the UPRR will implement reseeding, water application for upland shrubs, and additional restoration plantings and weeding based on the results of monitoring site visits.

Regarding California red-legged frog, monitoring during the first 3 years following restoration will define the baseline metric against which the UPRR will compare future monitoring results. Considering natural variability due to annual variations in rainfall or temperature, if the UPRR observes a reduction in California red-legged frog abundance for at least two consecutive survey periods, a management review meeting will evaluate the results. Adaptive management strategies may include management of predators or alteration of vegetation management techniques.

ANALYTICAL FRAMEWORK FOR THE JEOPARDY

Jeopardy Determination

Section 7(a)(2) of the Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. “Jeopardize the continued existence of” means “to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species” (50 CFR 402.02).

The jeopardy analysis in this biological opinion relies on four components: (1) the Status of the Species, which describes the current rangewide condition of the beach layia and California red-legged frog, the factors responsible for that condition, and its survival and recovery needs; (2) the Environmental Baseline, which analyzes the condition of the beach layia and California red-legged frog in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the beach layia and California red-legged frog; (3)

the Effects of the Action, which determines all consequences to the beach layia and California red-legged frog caused by the proposed action that are reasonably certain to occur in the action area; and (4) the Cumulative Effects, which evaluates the effects of future, non-Federal activities, that are reasonably certain to occur in the action area, on the beach layia and California red-legged frog.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the current status of the beach layia and California red-legged frog, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to reduce appreciably the likelihood of both the survival and recovery of the beach layia and California red-legged frog in the wild by reducing the reproduction, numbers, and distribution of that species.

STATUS OF THE SPECIES

Beach Layia

Legal Status

The Service listed beach layia as endangered on June 22, 1992 (Service 1992) and has not designated critical habitat for the species. The Service issued a recovery plan for beach layia and other species in 1998 (Service 1998) and a 5-year status review in 2011 (Service 2011). The Service reclassified beach layia from endangered to threatened on May 2, 2022 (Service 2022, p. 18731).

Natural History

Beach layia is a succulent annual herb belonging to the sunflower family (Asteraceae). The unbranched to highly branched plants range up to 6 inches tall and 16 inches across. Characteristics that distinguish beach layia from similar species include its fleshy leaves, inconspicuous flower heads with short, 0.08- to 0.1-inch-long, white ray flowers (occasionally purple) and yellow disk flowers, bristles around the top of the one-seeded achene, and dry fruit (Service 1998, p. 43). The number of flower heads (and seeds) on individual plants varies with plant size. Typically, unbranched, short plants on dry, exposed sites will produce a single head, while highly branched plants in moist dune hollows may produce more than 100 heads (Service 1998, p. 45).

As a winter annual, beach layia germinates during the rainy season between fall and mid-winter, blooms in spring (March to July), and completes its life cycle before the dry season. Populations tend to be patchy and subject to large annual fluctuations in size and dynamic changes in local distribution associated with the shifts in dune blowouts, remobilization, and natural dune stabilization that occur in the coastal dune ecosystem. Beach layia plants often occur where

sparse vegetation traps wind-dispersed seeds but causes minimal shading. Wind disperses seeds mostly during late spring and summer months (Service 1998, p. 45).

A study conducted at the Lanphere Dunes Unit of the Humboldt Bay National Wildlife Refuge indicated that beach layia is self-compatible and capable of self-pollination. There were observations of anobiid beetles and halictid bees visiting beach layia at Lanphere Dunes. The small diurnal moth, *Lithariapteryx abroniaeella*, micro bee flies (Mythicomyia spp.), and small native bees (Hesperapsis spp.) have visited beach layia flowers at VSFB (Service 2018, p. 9).

Rangewide Status

Beach layia population surveys in the mid-1990s estimated the presence of approximately 300,000 individuals from Santa Barbara County to Humboldt County (Service 1998, p. 43). Four of the known historical populations are extirpated, including the San Francisco Peninsula population, the Point Pinos population in the Monterey area, and two populations north of the Mad River in Humboldt County. All currently extant populations were known at the time the recovery plan was prepared apart from the population at Freshwater Lagoon in Redwood National Park in northern Humboldt County California discovered in 2000 and the Oregon population discovered in 1990 (Consortium of Pacific Northwest Herbaria Database 2019).

The northern range extent for beach layia is at Crissey Field in Curry County, Oregon. The species next occurs approximately 50 miles south at Freshwater Lagoon Spit in northern Humboldt County, California. Beach layia occurs intermittently over 70 miles of shoreline as far south as the mouth of the Mattole River in Humboldt County. From there it does not occur again until approximately 170 miles south at Point Reyes National Seashore (Marin County), and then another 120 miles south at the Monterey Peninsula (Monterey County). Finally, a gap of about 150 miles separates it from the southernmost site at VSFB in Santa Barbara County.

The largest populations of beach layia are in Humboldt County; three are extant and located on the Samoa Peninsula in the Humboldt Bay dune system. Two other Humboldt County populations include one associated with dunes at the mouth of McNutt Gulch and one in dunes south of the Mattole River. The Marin County populations occur in Point Reyes National Seashore near the Kehoe Beach Dunes and Abbott's Lagoon. Surveys by California Native Plant Society volunteers recorded 13 colonies along the dune complex (Service 1998, p. 26). The San Francisco Peninsula population occurred on dune habitat in Golden Gate Park, last observed in 1904. In Monterey County, the species also historically occurred at four localities within the Monterey Peninsula dune system. It is now extirpated from Point Pinos, the type locality (where the species was first observed and described).

Biologists assumed beach layia was extirpated from Santa Barbara County until it was rediscovered on VSFB in 1995. The population of about 80 individuals occurred south of San Antonio Terrace scattered in coastal dune scrub vegetation on the west side of Coast Road. In 1998, biologists discovered a second population approximately 300 yards to the west. This

population covered a much larger area than the 1995 population and contained an estimated 250 to 500 individuals. Surveys in 2009 identified five additional populations, resulting in a determination that beach layia occupied a total of 1.17 acres on VSFB. Surveys conducted in 2010 revealed approximately 3,000 individual plants within eight more populations. The new populations include the largest extant population on VSFB with 1,743 plants. Surveyors in 2017 found an estimated 5,069 individuals on roughly 0.83 acre (Service 2018, p. 37).

Due to substantial improvements in the species' overall status since its original listing as endangered in 1992, the Service downlisted beach layia to threatened on May 2, 2022. The estimated abundance of beach layia is currently 30 million plants with an estimated occupied habitat of approximately 595 acres. This is an increase of approximately 28 percent for abundance and an increase of approximately 65 percent for occupied habitat since 2017 estimates (Service 2022, p. 18731).

Recovery

The recovery plan for the beach layia (Service 1998) identifies four recovery localities (Humboldt Bay, Point Reyes, the dune systems south of San Francisco at the Monterey Peninsula, and VSFB) to conserve and maintain the species' distribution. According to the recovery plan, consideration to delist beach layia will occur when:

1. The Humboldt Bay dune system, on both the North and South Spits, has (*i*) removed all of the European beachgrass (*Ammophila arenaria*) from the foredune; substantially reduced ice plant (Carpobrotus spp.), yellow bush lupine (*Lupinus arboreus*), and pampas grass (Cortaderia sp.); restored degraded dunes; and implemented vehicle management (including fencing and patrolling where needed); (*ii*) established new populations of beach layia that persist for at least 10 years, with monitoring for at least 15 years that demonstrates populations are increasing in response to availability of habitat; and (*iii*) provided written assurance of long-term support for continued management of the dunes and for biological monitoring.
2. The population at Point Reyes National Seashore has expanded in response to the same measures described for the Humboldt Bay dunes. The main exotic (nonnative) plant problems of concern are foredune European beachgrass and ice plant.
3. The occurrences in the dune systems south of San Francisco at the Monterey Peninsula and VSFB, the latter a part of what is known as the Guadalupe-Nipomo dune system, (Spyglass Hill (Signal Hill Dunes), Point Pinos, Pico Avenue, Pacific Grove (Asilomar State Beach), VSFB) have received foredune beachgrass control, ice plant management, and management and enhancement to protect 5,000 individuals or more per site.

California Red-Legged Frog

Legal Status

The Service listed California red-legged frogs as threatened on May 23, 1996 (Service 1996) and revised designated critical habitat for the California red-legged frog on March 17, 2010 (Service 2010). The Service issued a recovery plan for the species on May 28, 2002 (Service 2002).

Natural History

California red-legged frogs use a variety of habitat types ranging from sea level to approximately 5,000 feet elevation, including aquatic systems, riparian, and upland habitats. Individual California red-legged frogs may use the environment in various ways, for example, an individual may complete their entire life cycle in a particular habitat without using other components (i.e., a pond is suitable for each life stage and use of upland habitat or a riparian corridor is not necessary). However, populations appear to persist where a mosaic of habitat elements exists, embedded within a matrix of dispersal habitat. Adults are often associated with dense, shrubby riparian or emergent vegetation and areas with deep (greater than 1.6 feet) still or slow-moving water; the largest summer densities of California red-legged frogs are associated with deep-water pools with dense stands of overhanging willows (Salix spp.) and an intermixed fringe of cattails (*Typha latifolia*) (Hayes and Jennings 1988, p. 147).

California red-legged frogs can breed in both natural and anthropogenic aquatic habitats; surveyors have collected tadpoles, juveniles, and adult frogs from streams, creeks, ponds, marshes, deep riverine pools and backwaters within streams and creeks, dune ponds, lagoons, estuaries, and artificial impoundments such as stock ponds. Important factors influencing the suitability of aquatic breeding sites are the general lack of invasive aquatic predators, sufficient hydro-period, percent emergent vegetation, and topography. Accessibility to upland sheltering habitat is essential for the survival of California red-legged frogs within a watershed and can be a factor limiting population numbers and distribution.

California red-legged frogs are “irruptive” breeders where their breeding capacity is highly dependent on local environmental conditions, specifically the availability of cool water for egg deposition and larval maturation (Jennings and Hayes 1994, p. 62). California red-legged frogs breed from November to May and breeding activity typically begins earlier at southern coastal than northern coastal localities (Storer 1925, p. 2; Alvarez et al. 2013, pp. 547–548). Breeding may start as late as March or April in Sierra Nevada localities, due to low temperatures at these sites in January and February (Tatarian 2008, p. 16). Breeding in southern California localities may start as late as April, as exemplified in Matilija Canyon following the 2017 Thomas Fire (Patrick Lieske, U.S. Forest Service, in litt. 2021). High water flows in the winter and spring also can delay breeding in streams and rivers (Fellers et al. 2001, p. 157).

Female California red-legged frogs lay only one egg mass in a breeding year and each egg mass contains between 300 to 4,000 eggs (Storer 1925, p. 240). Frogs typically deposit egg masses in relatively shallow water (approximately 1.6 feet to 2 feet deep) on emergent vegetation within 4 feet of shore (Storer 1925, p. 239, Jennings and Hayes 1994, p. 64). However, the species can deposit eggs on a wide variety of substrates including boulders and cobbled substrate and submerged tips of overhanging branches, and surveyors have documented egg masses 39 feet from shore and in water up to 10.5 feet deep (Alvarez et al. 2013, pp. 544–545, Wilcox et al. 2017, p. 68). California red-legged frog tadpoles hatch from egg masses after 6 to14 days (Storer 1925, p. 241). Tadpole development and growth rates are variable and likely temperature dependent (Fellers 2005, pp. 552–554). Occasionally, tadpoles may overwinter and then metamorphose the following spring, a phenomenon so far observed in Santa Clara, Marin, Contra Costa, and San Luis Obispo Counties (Fellers et al. 2001, entire). The juvenile California red-legged frog life stage is defined as the time after an individual undergoes metamorphosis (when they lose their tails and become small froglets) which typically occurs four to five months after hatching and it spans to when an individual can breed (Storer 1925, p. 241; Wright and Wright 1949, p. 422). On average, the juvenile life stage is from about five months of age to three years in California red-legged frogs. Immediately after metamorphosis, juveniles will shelter near their natal pond. However, some juveniles may disperse in the fall to nearby moist uplands or different aquatic habitat to avoid predation by larger, older frogs. Hayes and Tennant (1985, p. 604) found juveniles to seek prey diurnally and nocturnally, whereas adults were largely nocturnal.

During periods of wet weather, starting with the first rains of fall, some individual California red-legged frogs may make long-distance overland excursions through upland habitats to reach breeding sites. In Santa Cruz County, Bulger et al. (2003, p. 90) found marked California red-legged frogs moving up to 1.74 miles through upland habitats, via point-to-point, straight-line migrations without regard to topography, rather than following riparian corridors. Most of these overland movements occurred at night and took up to 2 months. Similarly, in San Luis Obispo County, Rathbun and Schneider (2001, p. 1302) documented the movement of a male California red-legged frog between two ponds that were 1.78 miles apart in less than 32 days; however, most California red-legged frogs in the Bulger et al. (2003, p. 93) study were non-migrating frogs and always remained within 426 feet of their aquatic site of residence (half of the frogs always stayed within 82 feet of water). Rathbun et al. (1993, p. 15) radio-tracked three California red-legged frogs near the coast in San Luis Obispo County at various times between July and January; these frogs also stayed close to water and never strayed more than 85 feet into upland vegetation. Scott (2002, p. 2) radio-tracked nine California red-legged frogs in East Las Virgenes Creek in Ventura County from January to June 2001, which remained relatively sedentary as well; the longest within-channel movement was 280 feet and the farthest movement away from the stream was 30 feet.

After breeding, California red-legged frogs often disperse from their breeding habitat to forage and seek suitable dry-season habitat. Cover within dry-season aquatic habitat could include boulders, downed trees, and logs; agricultural features such as drains, watering troughs, spring

boxes, abandoned sheds, or hayricks, and industrial debris. California red-legged frogs use small mammal burrows and moist leaf litter (Rathbun et al. 1993, p. 15; Jennings and Hayes 1994 p. 64); incised stream channels with portions narrower and deeper than 18 inches may also provide habitat (Service 2002, p. 14). This type of dispersal and habitat use, however, is not observed in all California red-legged frogs and is most likely dependent on the year-to-year variations in climate and habitat suitability and varying requisites per life stage.

Although the presence of California red-legged frogs is correlated with still water deeper than approximately 1.6 feet, riparian shrubbery, and emergent vegetation (Jennings and Hayes 1994, p. 64), California red-legged frogs appear to be absent from numerous locations in its historical range where these elements are well represented. The cause of local extirpations does not appear to be restricted solely to loss of aquatic habitat. The most likely causes of local extirpation are considered to be changes in faunal composition of aquatic ecosystems (i.e., the introduction of invasive predators and competitors) and landscape-scale disturbances that disrupt California red-legged frog population processes, such as dispersal and colonization. The introduction of contaminants or changes in water temperature may also play a role in local extirpations. These changes may also promote the spread of predators, competitors, invasive plants, parasites, and diseases.

Rangewide Status

The historical range of the California red-legged frog extended coastally from southern Mendocino County and inland from the vicinity of Redding, California, southward to northwestern Baja California, Mexico (Storer 1925, p. 235; Jennings and Hayes 1985, p. 95; Shaffer et al. 2004, p. 2673). The California red-legged frog has sustained a 70 percent reduction in its geographic range because of several factors acting singly or in combination (Davidson et al. 2001, p. 465).

Over-harvesting, habitat loss, non-native species introduction, and urban encroachment are the primary factors that have negatively affected the California red-legged frog throughout its range (Jennings and Hayes 1985, pp. 99-100; Hayes and Jennings 1988, p. 152). Habitat loss and degradation, combined with over-exploitation and introduction of exotic predators, were important factors in the decline of the California red-legged frog in the early to mid-1900s. Continuing threats to the California red-legged frog include direct habitat loss due to stream alteration and loss of aquatic habitat, indirect effects of expanding urbanization, competition or predation from non-native species including the bullfrog, catfish (Ictalurus spp.), bass (Micropterus spp.), mosquito fish (*Gambusia affinis*), red swamp crayfish (*Procambarus clarkii*), and signal crayfish (*Pacifastacus leniusculus*). Chytrid fungus (*Batrachochytrium dendrobatidis*) is a waterborne fungus that can decimate amphibian populations and is considered a threat to California red-legged frog populations.

The Service initiated a 5-year review of the status of the California red-legged frog in May 2011 which it has not yet completed.

Recovery

The 2002 final recovery plan for the California red-legged frog (Service 2002) states that the goal of recovery efforts is to reduce threats and improve the population status of the California red-legged frog sufficiently to warrant delisting. The recovery plan describes a strategy for delisting, which includes: (1) protecting known populations and reestablishing historical populations; (2) protecting suitable habitat, corridors, and core areas; (3) developing and implementing management plans for preserved habitat, occupied watersheds, and core areas; (4) developing land use guidelines; (5) gathering biological and ecological data necessary for conservation of the species; (6) monitoring existing populations and conducting surveys for new populations; and (7) establishing an outreach program. According to the recovery plan, consideration to delist California red-legged frog will occur when:

1. Suitable habitats within all core areas are protected and/or managed for California red-legged frogs in perpetuity, and the ecological integrity of these areas is not threatened by adverse anthropogenic habitat modification (including indirect effects of upstream/downstream land uses).

2. Existing populations throughout the range are stable (i.e., reproductive rates allow for long-term viability without human intervention). Population status will be documented through establishment and implementation of a scientifically acceptable population monitoring program for at least a 15-year period, which is approximately 4 to 5 generations of the California red-legged frog. This 15-year period should coincide with an average precipitation cycle.

3. Populations are geographically distributed in a manner that allows for the continued existence of viable metapopulations despite fluctuations in the status of individual populations (i.e., when populations are stable or increasing at each core area).

4. The species is successfully reestablished in portions of its historical range such that at least one reestablished population is stable/increasing at each core area where California red-legged frog are currently absent.

5. The amount of additional habitat needed for population connectivity, recolonization, and dispersal has been determined, protected, and managed for California red-legged frogs.

The recovery plan identifies eight recovery units based on the assumption that various regional areas of the species' range are essential to its survival and recovery. The recovery status of the California red-legged frog is considered within the smaller scale of recovery units as opposed to the overall range. These recovery units correspond to major watershed boundaries as defined by U.S. Geological Survey hydrologic units and the limits of the range of the California red-legged frog. The goal of the recovery plan is to protect the long-term viability of all extant populations within each recovery unit.

Within each recovery unit, core areas have been delineated and represent contiguous areas of moderate to high California red-legged frog densities that are relatively free of exotic species such as bullfrogs. The goal of designating core areas is to protect metapopulations that combined with suitable dispersal habitat which will support long-term viability within existing populations. This management strategy allows for the recolonization of habitat within and adjacent to core areas that are naturally subjected to periodic localized extinctions, thus assuring the long-term survival and recovery of the California red-legged frog.

ENVIRONMENTAL BASELINE

The implementing regulations for section 7(a)(2) (50 CFR 402.02) define the environmental baseline as "the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline."

Action Area

The implementing regulations for section 7(a)(2) of the Act (50 CFR 402.02) define the "action area" as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. The action area for this biological opinion includes all areas subject to temporary and permanent ground-disturbing activities required to replace Honda Bridge and all associated facilities and infrastructure in addition to habitat mitigation areas. The total action area is approximately 30.2 acres which consists of 17.3 acres of construction and staging activities directly related to bridge replacement, 2.6 acres for fiber optic relocation and replacement, and 10.3 acres of mitigation areas (Figure 1, full extent of action area depicted in *Study Area Overview* panel).

Habitat Characteristics of the Action Area

The biological assessment provides results of an extensive habitat type classification survey within the action area (Althouse and Meade 2022, pp. 19–24). Of the major vegetation types present within the action area, acacia comprises 40.1 percent, central coastal scrub/iceplant comprises 8.3 percent, central coastal scrub comprises 4 percent, coastal brackish/salt marsh comprises 2.7 percent, and central coast arroyo willow riparian and scrub comprises 2 percent. Disturbed, cleared, and developed land comprises 36.1 percent.

Existing Conditions in the Action Area

Honda Creek enters the action area via two large culverts below Coast Road, approximately 350 feet upstream from the bridge where central coast arroyo willow riparian habitat lines the creek. Freshwater vegetation transitions to a coastal salt marsh floodplain near the bridge and transitions to foredune and coastal strand near the creek's outlet to the ocean. During and after high rainfall events, surface flow is present from the culverts to the ocean. As flow decreases, a sand berm often closes the creek mouth, and a small estuarine lagoon may form. The lagoon may remain full all year or dry up during the summer leaving a varied habitat of wet sand, gravel, and wetland vegetation. Estuary conditions and the amount of open water are dependent upon variation in seasonal and interannual rainfall, tides, and storm waves and may vary greatly annually and interannually. An existing dirt road currently provides access to Honda Beach to the north and an existing VSFB borrow pit to the west via a small spur road. North of the bridge, the UPRR currently utilizes an existing staging area for routine maintenance operations. The shoulders of Coast Road and areas immediately adjacent to the UPRR line undergo routine vegetation mowing and clearance.

Previous Consultations in the Action Area

On May 14, 2021 Vandenberg Air Force Base (VAFB; referred to herein as the Air Force) changed its name to Vandenberg Space Force Base.

On December 3, 2015, the Service issued a programmatic biological opinion to the Air Force for routine mission operations and maintenance activities at VAFB (Service 2015; 08EVEN-2013-F-0430). The Service concluded that the proposed action was not likely to jeopardize the continued existence of the Vandenberg monkeyflower, beach layia, Gaviota tarplant, Lompoc yerba santa, vernal pool fairy shrimp, El Segundo blue butterfly, California red-legged frog, tidewater goby, unarmored threespine stickleback, California least tern, and western snowy plover.

Condition (Status) of the Species in the Action Area

<u>Beach Layia</u>

There are two known occurrences within the action area, CNDDB #1 and #28 (CDFW 2021, as cited in Althouse and Meade 2022, p. 25). Biologists first documented CNDDB #1, immediately northwest of Honda Bridge (approximately 0.08 mile), in 1929 and it remains the southernmost occurrence of the species. Biologists did not detect beach layia at this occurrence during a 1987 survey and considered the occurrence extirpated until 2009 when a survey detected three individuals. Subsequent surveys found 13 plants in 2010 and no plants in 2012 through 2019 (SAIC 2012, MSRS 2015, 2017, 2020, as cited in Althouse and Meade 2022, p. 26). Occurrence #28 is near the *Fiber Optic Relocation* portion of the action area and only overlaps with the action area in one location within the UPRR right-of-way. Surveys have found beach layia at CNDDB #28 every year since 2010 with the population fluctuating greatly depending on rainfall

timing and totals. Surveys in 2010 and 2019 detected high counts of 2,959 and 3,145 individuals, compared to low counts of 27 in 2012 and 53 in 2014 (MSRS 2020, as cited in Althouse and Meade 2022, p. 26).

Qualified botanists surveyed known occurrences and suitable habitat within the action area in 2018 and 2021. Suitable habitat includes open sandy soil north of Honda Canyon and west of Coast Road; areas completely covered by iceplant are unsuitable for beach layia and most other annual plant taxa. Botanists visited a reference site with blooming plants on VSFB property (CNDDB #28) during the 2021 survey and thoroughly searched suitable areas for beach layia during the appropriate season. Botanists did not detect beach layia within the action area during 2018 or 2021 surveys but did find it blooming immediately adjacent to the action area in the western portions of CNDDB #28 on VSFB property in 2021.

California Red-legged Frog

Surveys have documented California red-legged frogs within the action area between Honda Bridge and the Coast Road culverts at CNDDB occurrence #1442 (CDFW 2021, as cited in Althouse and Meade 2022, p. 28). They are also present at five additional occurrences within Honda Creek upstream of Coast Road (CNDDB #1443, 1438, 1439, 1440, 1441). Biologists conducted four protocol-level California red-legged frog surveys (two days and two nights) in Honda Creek from the Coast Road culverts to Honda Beach. Biologists visually inspected all habitat for adults, larvae, and egg masses, and conducted additional observations during two non-protocol site visits. During the four protocol-level surveys, one non-protocol survey, and one incidental survey, biologists detected a maximum of 11 adult California red-legged frogs, 150 tadpoles, and 2 egg masses within the action area (Table 1). Note: Surveys do not account for recounts of the same individual/egg mass.

Table 1. 2021 California red-legged frog survey results conducted in Honda Creek from the Coast Road culverts to Honda Beach (Althouse and Meade 2022, p. 28).

Date	Survey Type	Adults	Tadpoles	Egg Masses
18 March 2021	Non-protocol	0	0	1
6 April 2021	Non-protocol	0	0	2
27 April 2021	Protocol (day)	2	100	0
27 April 2021	Protocol (night)	11	150	0
24 May 2021	Protocol (night)	5	150	0
25 May 2021	Protocol (day)	0	100	0

In 2022, however, the Space Force reported a notable increase in detected egg masses during protocol surveys in Honda Creek (USSF, unpubl. data 2022). Biologists detected a maximum of 7 adults, 50 tadpoles, and 13 egg masses within the action area (Table 2).

Table 2. 2022 California red-legged frog survey results conducted in Honda Creek (USSF, unpubl. data 2022).

Date	Survey Type	Adults	Tadpoles	Egg Masses
1 January 2022	Protocol (night)	7	0	0
1 February 2022	Protocol (night)	2	1	0
3 March 2022	Protocol (day)	0	0	3
9 March 2022	Protocol (day)	1	50	13
14 March 2022	Protocol (day)	0	0	2
9 May 2022	Habitat Assessment (day)	6	0	0

Recovery

Beach Layia

The recovery plan for beach layia describes the species to be known in the Vandenberg dune complex, which includes Purisima Point, San Antonio Terrace, and Lompoc dune sheets (Service 1998). Biologists considered this area under major invasion by veldt grass (*Ehrharta calycina*) and iceplant and it supported several species of concern.

The 2011 5-year status review discusses that there has been progress toward meeting delisting criterion 3 but that it has not yet been met (Service 2011, p. 18). Delisting criterion 3 states that the occurrences in the dune systems south of San Francisco at the Monterey Peninsula and VSFB have received foredune beachgrass control, iceplant management, and are managed and enhanced to protect 5,000 individuals or more per site. The 5-year status review describes that the Space Force has completed some removal of iceplant adjacent to beach layia habitat on VSFB and that they plan additional restoration within the habitat (Service 2011, p. 17).

After 2011, the Space Force has conducted restoration of dune habitat occupied by beach layia since 2014 and 2016 on south and north base, respectively. This restoration has resulted in declines of invasive species, particularly European beachgrass, iceplant, and acacia (*Acacia longifolia*) (ManTech 2020, p. 49). The Space Force has contributed toward delisting criterion 3 by implementing management of beachgrass and iceplant and has exceeded the goal of protecting 5,000 beach layia individuals with 11,902 individuals on VSFB (ManTech 2020, p. 46).

California Red-legged Frog

In the recovery plan for California red-legged frog, the Service revised recovery units and identified core areas that are watersheds, or portions thereof, determined essential to the recovery of the California red-legged frog. VSFB is located within the Northern Transverse Ranges and Tehachapi Mountains Recovery Unit and Core Area 24, Santa Maria River-Santa Ynez River. This core area is important as California red-legged frogs currently occupy it, it contains a source population, and it provides connectivity between source populations (Service 2002, pp. 6, 146).

In this Recovery Unit, biologists consider the lower drainage basin of San Antonio Creek, the adjacent San Antonio Terrace, and San Antonio Lagoon to be among the most productive areas for California red-legged frogs in Santa Barbara County (Christopher 1996, as cited in Service 2002, p.10). Most of this area occurs on VSFB.

Recovery task 1.24 identifies the conservation needs in Core Area 24 to protect existing populations; reduce contamination of habitat (e.g., clean contaminated ponds on VSFB); control non-native predators; implement management guidelines for recreation; cease stocking dune ponds with non-native, warm water fish; manage flows to decrease impacts of water diversions; implement guidelines for channel maintenance activities; and preserve buffers from agriculture (e.g., in lower reaches of Santa Ynez River and San Antonio Creek) (Service 2002, p. 75).

EFFECTS OF THE ACTION

The implementing regulations for section 7(a)(2) define effects of the action as "all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action" (50 CFR 402.02).

In conducting this analysis, we have considered factors such as previous consultations; Federal Register rules; 5-year reviews; other Service documents; published scientific studies and literature; and professional expertise of Service personnel, particularly in dealing with aspects directly related to the sensitive species involved or other related scientific fields in determining whether effects are reasonably certain to occur. We have also determined that certain consequences are not caused by the proposed action, such as the increase or spread of disease, poaching, or collecting, because they are so remote in time, or geographically remote, or separated by a lengthy causal chain, so as to make those consequence not reasonably certain to occur.

Effects of the Proposed Action on the Beach Layia

Activities that could affect beach layia include unintentional damage by workers and/or vehicular traffic, vegetation management, and potential introduction and spread of non-native plants within the proposed action area. Potential impacts associated with these activities include the damage of individual beach layia, seed bank, and the loss of suitable habitat.

<u>Construction</u>

Ground disturbing construction activities, vehicular traffic, and foot traffic have the potential to directly affect beach layia. CNDDB #28 is near the *Fiber Optic Relocation* portion of the action area and overlaps with the action area in one location within the UPRR right-of-way. Botanists

did not detect beach layia at this location or anywhere within the action area during 2018 or 2021 surveys; however, a seed bank may still be present that has the potential to germinate given adequate and appropriately timed rainfall and thus may experience project impacts. To minimize potential impacts, a qualified biologist will survey potential beach layia habitat within and adjacent to the action area (including central dune scrub, central dune scrub/iceplant, and iceplant north of Honda Canyon) on an annual basis during the appropriate season (AM-1). Prior to any ground disturbing activities, the Space Force will map and fence known beach layia occurrences for avoidance using high visibility construction and silt fencing that will remain in place for the duration of the project (AM-1).

In the event that project activities impact beach layia occupied habitat, the Space Force will require that a qualified biologist collect available beach layia seed after the species senesces where construction activities will impact occupied habitat (AM-2). Initial topsoil salvage efforts may damage beach layia individuals and their associated seed bank in work areas if biologists collect soil at an improper time or depth. Potential long-term topsoil storage may also damage the seed bank if personnel store it under improper conditions (e.g., subjected to solarization, erosion, weed introduction). The precise length of time beach layia seed banks remain viable is unknown and consequently the duration of topsoil storage may also affect seed viability. To reduce effects, the Space Force will attempt to salvage topsoil following seed set under the direction of a qualified biologist (AM-2). The qualified biologist will determine when a particular area has gone to seed and inform project proponents and contractors of the optimal period to work in the subject area, helping to ensure topsoil salvage efforts occur at the proper time. The qualified biologist will oversee and instruct equipment operators during initial topsoil salvage efforts which will help ensure they collect topsoil at a proper depth (AM-2). The Space Force will collect and store beach layia seed and re-seed the same topsoil relocation site as detailed in AM-2.

As described, some level of loss may be associated with the proposed project's beach layia topsoil salvage and storage efforts; however, we anticipate that the potential negative effects of topsoil salvage and storage would be overall lower than if the project proponent did not conduct topsoil salvage. We anticipate the project proponent will conduct topsoil salvage at the optimal time following seed set, however we still consider salvage beneficial if conducted outside of the seed set window to help reduce effects to any existing seed bank present. As these efforts will only occur if beach layia is present in the action area, we anticipate the total area of topsoil salvage to be a very small percentage of the known beach layia population on VSFB, if any at all. Consequently, we expect adverse effects on beach layia from the proposed project's topsoil salvage and storage efforts to be low.

Mitigation and Monitoring

The UPRR will mitigate any disturbance to beach layia habitat at a 2:1 ratio (AM-2) and will monitor and treat topsoil relocation sites and mitigation areas for non-native species for 5 years after commencement of restoration or until the UPRR meets performance standards required

under other permits (Appendix C). Treatment may include hand-weeding or other manual methods; the UPRR will not use herbicides (AM-3). The Space Force will attempt to seed topsoil relocation sites with previously collected beach layia seed and a native grass seed mixture to help prevent future reinfestation of weeds (see section *Habitat Mitigation and Monitoring Plan*). Invasive plant removal activity near beach layia could also result in adverse effects due to workers trampling or crushing beach layia individuals if they are not known or detected in those areas. The Space Force will minimize these effects by requiring a qualified biological monitor delineate areas where beach layia are historically known to be located (AM-1) and brief all project personnel with an environmental training (AM-9).With the implementation and the continued management of mitigation areas, we expect adverse effects on beach layia individuals and its potential habitat loss from the construction of the proposed project to be low.

The movement of vehicles into and within the proposed action area may result in adverse effects to beach layia as a result of the introduction and spread of non-native weed species. To reduce effects of non-native weed seed introduction, the UPRR will clean all project related equipment and vehicles to be free of weed seeds prior to use in the action area (AM-19). A biological monitor will provide a briefing to crews detailing measures required to prevent the introduction and spread of weeds on VSFB and inspect vehicles and equipment for weed seeds prior to initial site activities. To reduce effects of non-native weed transport within the action area, the UPRR will clean equipment of weed seeds daily. Prior to leaving the action area, the UPRR will clean vehicles at designated exit areas and may wash at approved wash stations. With the implementation of the proposed avoidance and minimization measures, we expect adverse effects on beach layia from the introduction and spread of non-native weed species within the action area to be low.

Effects of the Proposed Action on the California Red-Legged Frog

Activities that could affect California red-legged frog include trampling and crushing by personnel or vehicles, entrapment, capture and relocation, disturbance due to construction noise, exposure to artificial night lighting, reduced water quality, streamflow alterations, and habitat loss. The proposed project is within known California red-legged frog occupied habitat.

<u>Construction</u>

California red-legged frogs are present and range within the action area from Honda Bridge to the Coast Road culverts upstream. Project activities would occur at any point throughout the 21-month proposed timeframe and would not avoid the breeding season. Mortality and injury could occur to all life stages due to entrapment or trampling and crushing by vehicles or personnel, particularly during causeway and crane pad construction within Honda Creek. The UPRR will minimize these effects by installing ERTEC wildlife exclusion fencing (or equivalent) with the intention of inhibiting California red-legged frogs from entering work areas (AM-4). The UPRR will open these fences during inactive construction periods to prevent entrapment of California red-legged frogs and other wildlife (AM-4). A Service-approved biologist will be present on site

during all construction activities occurring in California red-legged frog habitat and will survey these sites and the associated fencing daily prior to the start of work to minimize associated effects to California red-legged frogs (AM-5). Additionally, the Service-approved biologist will stop work and relocate any California red-legged frog life stage encountered during work activities to the nearest suitable habitat, detailed in AM-5.

Capture and relocation of California red-legged frogs could result in injury or death due to improper handling, containment, transport, or release into unsuitable habitat. Although we do not have an estimated survivorship for translocated California red-legged frogs, translocation reduces survivorship of wildlife in general due to intraspecific competition; lack of familiarity with the location of potential breeding, feeding, and sheltering habitats; and increased risk of predation. The UPRR will minimize effects by using Service-approved biologists as proposed, limiting the duration of handling, requiring proper transport of individuals, and identifying suitable relocation sites (detailed in AM-5). The Service expects the relocation of individuals from work areas to greatly reduce the overall level of injury and mortality, if any, which would otherwise occur if Service-approved biologists did not remove individuals. The UPRR will also reduce any associated risk of spreading chytrid fungus during capture and relocation activities by requiring the implementation of DAPTF.

The proposed project may produce both temporary and persistent elevated noise levels during construction. The UPRR would utilize pile driving equipment in the creek bottom for 12 weeks to 14 weeks which would generate significant percussive noise. Elevated noise levels from pile driving and other construction noise may disturb California red-legged frog and has the potential to alter behavior and induce physiological effects. We have no specific data on the response of California red-legged frog to varying levels or duration of construction noise exposure and consequently use research conducted on related anurans as a surrogate. Traffic noise playback experiments using noise levels between 75 dB to 87 dB have demonstrated physiological responses including increased level of stress hormone in *Hyla* and *Lithobates* (Troianowski et al. 2017, pp. 1137–1138; Tennessen et al. 2014, pp. 5–7). Prolonged elevated stress hormone concentrations can have deleterious effects on survival and subsequent reproduction (reviewed in Tennessen et al. 2014, pp. 1–3). California red-legged frogs may face increased risk of predation if they move away from noisy areas, with increased activity potentially making them more noticeable to predators. The UPRR will minimize potential noise related impacts on California red-legged frog by implementing AM-4 and 5 as described above, as well as removing all trash on site daily to reduce the likelihood of attracting predators (AM-6). Coast Road is also approximately 80 feet higher in elevation than the location of the bridge replacement and will subsequently aid in attenuating noise traveling up Honda Canyon.

Artificial night lighting associated with the bridge replacement could have adverse physiological and behavioral effects on California red-legged frogs. The UPRR indicates that they would require temporary artificial night lighting for 2 weeks when they close and replace the bridge deck; they would not install any new permanent lighting. Although we have no specific data on the response of California red-legged frogs to artificial night lighting exposure, laboratory and

field studies indicate artificial lighting can result in changes in hormone production, growth, as well as alter activity levels including movement and foraging in related anurans (May et al 2019; Hall 2016; Wise 2007; Baker and Richardson 2006). The introduction of artificial night lighting may increase anuran predation rates. Predators may have an increased ability to detect dispersing adult frogs that may move more in newly lit environments. Research has shown numerous anurans increase foraging activity surrounding permanent light sources (reviewed in Buchanan 2006), likely attributed to increased concentrations of prey levels resulting from insects' attraction to ultraviolet light (Longcore and Rich 2017, p. 25). The UPRR will minimize potential light related impacts on California red-legged frog by implementing AM-4 through 6 as described above. Furthermore, as the UPRR would only utilize night lighting for 2 weeks, we do not anticipate long term impacts from night lighting to California red-legged frogs.

Project activities within riparian habitat during access road, causeway, and crane pad construction could impact water quality and alter streamflow, consequently affecting all California red-legged frog life stages. Reduced water quality may alter the ability of California red-legged frogs to capture food or impair other normal behaviors essential to growth and survival. To minimize impacts to California red-legged frogs, the UPRR will collect baseline water quality measurements prior to the start of project activities and subsequently monitor water quality for the duration of the project (AM-10). The UPRR will implement appropriate erosion, sediment, and pollution control measures to minimize potential runoff and prevent spills from affecting aquatic habitat (AM-12 through 16, 23); however, they will also develop a contingency plan for recovery of California red-legged frog and other aquatic wildlife in the event of a local toxic spill or accidental dewatering (AM-11). The UPRR will mark the edge of riparian vegetation and boundaries of the project and work areas on all construction plans and will fence riparian vegetation outside of the action area for avoidance and leave undisturbed (AM-17, 18). A Service-approved biologist will be present at all times during active dewatering and will check the status of all dewatering sites at least once a week (more during peak construction activities) (AM-5). The UPRR will design any alterations to California red-legged frog habitat to minimize impacts to existing habitat and will restore all impacted habitat to its prior condition or better upon completion of the project (see below).

Mitigation and Monitoring

The UPRR will mitigate impacts to California red-legged frog habitat at a 2:1 ratio of creation or enhancement (area of created or enhanced habitat to impacted habitat) (AM-7) and will survey during and for 5 years after commencement of restoration or until the UPRR meets performance standards required under other permits (Appendix C). Restoration and enhancement activities will include removing non-native tree species, planting appropriate native species, returning Honda Creek and adjacent wetlands and uplands to pre-project contours and conditions, and/or providing habitat enhancement through the creation of additional habitat along lower Honda Creek through construction of 3 to 4 California red-legged frog pools (AM-7 and see section *Habitat Mitigation and Monitoring Plan*). The UPRR will not apply herbicide within or adjacent to Honda Creek in California red-legged frog habitat (AM-8). Restoration activities could also

result in adverse effects similar to those described above under *Construction*. Mortality and injury could occur to all life stages due to entrapment or vehicles or personnel trampling and crushing California red-legged frog individuals if they are not known or detected in those areas. The UPRR will minimize these effects by implementing AM-4 through 8 described above as well as briefing all project personnel with an environmental training (AM-9). With the implementation and the continued management of mitigation areas, we expect adverse effects on California red-legged frog individuals and its potential habitat loss from the construction of the proposed mitigation and monitoring to be temporary and the activities overall to be beneficial.

Effects on Recovery

Beach Layia

Although a seed bank may still be present that has the potential to germinate, beach layia currently does not occur within the action area, thus the amount and quality of habitat potentially lost relative to the distribution of the species on VSFB and within its larger range would not result in a substantial reduction in the sustainability of the species. The Space Force will further reduce the magnitude of effects on the local distribution of the species with incorporation of replacement and enhancement actions if beach layia occurs in the future and project activities impact beach layia occupied habitat.

We expect the measures to enhance beach layia habitat would offset any losses, and that the Space Force would continue to contribute toward recovery priority actions by implementing management of invasive plants and attempting to establish the species in currently unoccupied habitat. Based on these factors, we anticipate adverse effects from the proposed action will not diminish the ongoing contributions of the VSFB beach layia population toward overall recovery.

California Red-Legged Frog

Although adverse effects are likely to occur as a result of the proposed action, based on implementation of minimization and monitoring measures during construction activities and the proposed restoration activities, we expect project-related adverse effects to California red-legged frogs would be temporary.

We expect VSFB would continue to support and protect a substantial population of California red-legged frog. Based on these factors, we anticipate adverse effects from the proposed action will not diminish the ongoing contributions of the California red-legged frog population at VSFB to the Northern Transverse Ranges and Tehachapi Mountains Recovery Unit, Core Area 24, and overall recovery.

Summary of Effects

Beach Layia

The proposed project could affect beach layia and its associated seed bank within the action area. Currently, beach layia does not occur within the action area but has been known to in the past and may do so given adequate and appropriately timed rainfall. Impacts may occur to all beach layia individuals and associated seed bank within the project footprint. Adjacent populations may also be impacted as a result of trampling by workers and the potential introduction and spread of non-native invasive plants. The Space Force will minimize these effects by implementing proposed avoidance and minimization measures. The UPRR will attempt to preserve beach layia seed bank by salvaging topsoil in impacted areas and proposes to enhance beach layia habitat in a 2:1 ratio (habitat enhanced: occupied habitat impacted).

We do not expect that the project would affect the VSFB beach layia populations to a magnitude that would prevent them from sustaining themselves. With continued management of habitat enhancement areas, an overall net increase in available suitable habitat for the species may occur as a result of project implementation.

California Red-Legged Frog

The proposed project could affect California red-legged frogs (adults, subadults, tadpoles, and egg masses) within the action area given the known occurrence of the species, presence of suitable habitat, and the overlap of proposed project activities with the species' breeding season. The proposed project includes impacts to breeding and dispersal habitat and could cause adverse effects to California red-legged frog of all life stages. California red-legged frogs inhabiting the action area could be impacted during construction activities as well as during restoration activities as a result of trampling and crushing by personnel or vehicles, entrapment, capture and relocation, disturbance due to construction noise, exposure to artificial night lighting, reduced water quality, streamflow alterations, and habitat loss. The Space Force will minimize these effects by implementing proposed avoidance and minimization measures, and the UPRR will mitigate impacts to California red-legged frog habitat at a 2:1 ratio of creation or enhancement (area of created or enhanced habitat to impacted habitat).

Despite implementation of the proposed conservation measures described previously, based on the spatial extent of proposed project impacts, we conclude that some California red-legged frogs may be impacted as a result of project implementation. We do not expect the project would affect local populations to a magnitude that would prevent them from sustaining themselves. We do not expect that the project would affect the ability of the Santa Maria River-Santa Ynez River core area to remain occupied by the species, nor would it prevent connectivity between occupied areas or prevent dispersing individuals from colonizing other areas.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. We do not consider future Federal actions that are unrelated to the proposed action in this section because they require separate consultation pursuant to section 7 of the Act. We are unaware of any future State, tribal, local, or private actions that are reasonably certain to occur in the action area.

CONCLUSION

The regulatory definition of "to jeopardize the continued existence of the species" focuses on assessing the effects of the proposed action on the reproduction, numbers, and distribution, and their effect on the survival and recovery of the species being considered in the biological opinion. For that reason, we have used those aspects of the beach layia and California red-legged frog status as the basis to assess the overall effect of the proposed action on the species.

Beach Layia

Reproduction

Though adverse effects may occur, we anticipate proposed species-specific measures would minimize and/or offset project-related adverse effects to the reproductive capacity of beach layia. We also anticipate the proposed action will produce a temporary effect with pre-project conditions overall returning following project completion. We expect that the adverse effects of the proposed action would not appreciably reduce the reproductive capacity of beach layia at VSFB or rangewide.

Numbers and Distribution

Currently, beach layia does not occur within the action area but has been known to in the past and may do so given adequate and appropriately timed rainfall. If project activities impact occupied beach layia habitat, the Space Force will attempt to salvage the associated seed bank to create potential for future propagation. The exact number of individuals that may be lost will vary being that beach layia is an annual species that may undergo seasonal fluctuation in its extent and spatial distribution. We expect the proposed action will affect a small number of beach layia relative to the VSFB population. Therefore, we conclude that the proposed project would not significantly reduce the number in the action area or the rangewide population.

Similarly, we expect that effects of the proposed action would have a low to immeasurable effect on the distribution of beach layia. We expect that the proposed action would not appreciably reduce the distribution of beach layia at VSFB or rangewide. The implementation of proposed habitat mitigation areas at a 2:1 ratio may create new suitable habitat that serves to enhance the existing population as a result of project implementation.

Recovery

The Space Force would contribute toward recovery priority actions by implementing management of invasive plants and attempting to establish beach layia in currently unoccupied habitat within mitigation areas if project activities impact occupied beach layia habitat. We expect conditions for beach layia at VSFB would not decline measurably as a result of the proposed action, and consequences of the proposed action would not appreciably interfere with the overall recovery of beach layia.

California Red-Legged Frog

Reproduction

Though adverse effects are likely, we anticipate project-related adverse effects to breeding California red legged frogs would be temporary with pre-project conditions returning following project and restoration completion. The proposed project would result in a temporary loss of California red-legged frog breeding habitat which may impact California red-legged frog breeding efforts and result in associated loss of egg masses. Overall, the action area would constitute a small portion of suitable breeding habitat across VSFB. The UPRR would implement measures to minimize the risk of adverse effects to California red-legged for the duration of the project and would monitor recovery of the California red-legged population within the action area for 5 years after project completion or until the UPRR meets performance targets required under other permits. Consequently, we do not expect that breeding efforts for the California red-legged frogs would be measurably affected by the proposed activities and conclude that the proposed project would not appreciably reduce successful California red-legged frog reproduction in the action area, in the Northern Transverse Ranges and Tehachapi Mountains Recovery Units, or rangewide.

Numbers and Distribution

The proposed activities have a potential to contribute to the loss of individual California red-legged frogs; however, based on measures to minimize and monitor adverse effects, this loss may represent a small portion of California red-legged frog numbers over time. California red-legged frogs closest to the action area may emigrate out of the area to avoid noise disturbances due to pile driving and other construction noise. Construction noise would be temporary; thus, we do not anticipate this potential emigration would influence the number of California red-legged frogs on VSFB. We expect that effects of the proposed action would not appreciably reduce the numbers of California red-legged frog on base or rangewide.

Similarly, we expect that effects of the proposed action would have a low to immeasurable effect on the distribution of California red-legged frogs. We expect that the proposed action would not appreciably reduce the distribution of California red-legged frogs on VSFB or rangewide.

Recovery

The proposed action would not result in any appreciable change in reproduction, population numbers, or distribution of the California red-legged frog and would not preclude the Service's ability to implement any of the measures identified in the recovery plan for the species. Therefore, we conclude that the proposed action would not appreciably reduce the likelihood of recovery of the California red-legged frog in the Northern Transverse Ranges and Tehachapi Mountains Recovery Units, or rangewide.

After reviewing the current status of beach layia and California red-legged frog; the environmental baseline for the action area; the effects of the proposed action; and the cumulative effects, it is the Service's biological opinion that the Honda Bridge Replacement project at VSFB, as proposed, is not likely to jeopardize the continued existence of the beach layia or California red-legged frog.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened wildlife species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm in the definition of "take" in the Act means an act which actually kills or injures wildlife. Such [an] act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR 17.3). Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not the purpose of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

Sections 7(b)(4) and 7(o)(2) of the Act generally do not apply to listed plant species; however, limited protection of listed plants is provided at section 9(a)(2) to the extent that the Act prohibits the removal and reduction to possession of federally listed plants or the malicious damage of such plants on areas under Federal jurisdiction, or the destruction of listed plants on non-Federal areas in violation of State law or regulation or in the course of a violation of a State criminal trespass law.

AMOUNT OR EXTENT OF TAKE

California Red-Legged Frog

We anticipate that some California red-legged frog could be taken as a result of the proposed action. We expect the incidental take to be in the form of capture, injury, and kill. We cannot quantify the precise number of California red-legged frog that may be taken as a result of the action that the Space Force has proposed because California red-legged frog move over time; for

example, animals may have entered or departed the action area since the time of pre-construction surveys. Other individuals may not be detected due to their cryptic nature, small size, and low mobility. The protective measures proposed by the UPRR are likely to prevent mortality or injury of most individuals. In addition, finding a dead or injured California red-legged frog is unlikely. Consequently, we are unable to reasonably anticipate the actual number of California red-legged frog that would be taken by the proposed action; however, we must provide a level at which formal consultation would have to be reinitiated. The Environmental Baseline and Effects Analysis sections of this biological opinion indicate that adverse effects to California red-legged frog would likely be low given the nature of the proposed activities, and we, therefore, anticipate that take of California red-legged frog would also be low. We also recognize that for every California red-legged frog found dead or injured, other individuals may be killed or injured that are not detected, so when we determine an appropriate take level, we are anticipating that the actual take would be higher and set the number below that level.

Similarly, for estimating the number of California red-legged frog that would be taken by capture, we cannot predict how many may be encountered for reasons stated earlier. While the benefits of relocation (i.e., minimizing mortality) outweigh the risk of capture, we must provide a limit for take by capture at which consultation would be reinitiated because high rates of capture may indicate that some important information about the species in the action area was not apparent (e.g., it is much more abundant than thought). Conversely, because capture can be highly variable, depending upon the species and the timing of the activity, we do not anticipate a number so low that reinitiation would be triggered before the effects of the activity were greater than what we determined in the Effects Analysis.

Therefore, if 3 adult or subadult California red-legged frog is found killed or wounded, including during capture and relocation, annually or 6 over the course of the construction and restoration; 30 adults or subadults are captured annually or 60 over the course of the construction and restoration; 5 tadpoles are found killed or wounded, including during capture and relocation, annually or 10 over the course of the construction and restoration; 750 tadpoles are captured annually or 1,500 over the course of the construction and restoration; 1 egg mass is killed or wounded, including during capture and relocation, annually or 2 over the course of the construction and restoration; or 10 egg masses are captured annually or 20 over the course of the construction and restoration, the Space Force must contact our office immediately to reinitiate formal consultation (Table 3). Project activities that are likely to cause additional take should cease as the exemption provided pursuant to section 7(o)(2) may lapse and any further take could be a violation of section 4(d) or 9.

Table 3. Summary of incidental take for California red-legged frog life stages.

Life Stage	Quantity (per calendar year)	Maximum limit over the duration of the project	Type of Take
Adults/subadults	3	6	Killed or wounded (including during capture and relocation)
Adults/subadults	30	60	Captures
Tadpoles	5	10	Killed or wounded (including during capture and relocation)
Tadpoles	750	1,500	Captures
Egg masses	1	2	Killed or wounded (including during capture and relocation)
Egg masses	10	20	Captures

REASONABLE AND PRUDENT MEASURES

The measures described below are non-discretionary and must be undertaken by the Space Force or made binding conditions of any grant or permit issued to the UPRR, as appropriate, for the exemption in section 7(o)(2) to apply. The Space Force has a continuing duty to regulate the activity covered by this incidental take statement. If the Space Force (1) fails to assume and implement the terms and conditions or (2) fails to require the UPRR to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, the Space Force or the UPRR must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR 402.14(i)(3)].

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize the impacts of the incidental take of California red-legged frog:

1. The Space Force must ensure that biologists used for surveying, monitoring, training, and capture and relocation tasks are skilled and experienced.

2. The Space Force must reduce potential for injury or mortality of California red-legged frogs.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the Space Force must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline reporting and monitoring requirements. These terms and conditions are non-discretionary.

The following term and condition implements reasonable and prudent measure 1:

> The Space Force must request Service approval of any biologist who will conduct activities related to this biological opinion at least 30 days prior to conducting any such activities. A qualified biologist(s) is more likely to reduce adverse effects based on their expertise with the covered species. Please be advised that possession of a 10(a)(1)(A) permit for the covered species does not substitute for the implementation of this measure. Authorization of Service-approved biologists is valid for this consultation only.

The following terms and conditions implement reasonable and prudent measure 2:

1. To further reduce the time a California red-legged frog is in captivity, the Space Force must identify areas to relocate individuals (receiver sites) prior to surveys.
2. The Space Force must limit all project artificial night lighting on adjacent natural habitats. The Space Force must shield lights in a manner to ensure that light falls only on intended surfaces. Light design considerations must include use of embedded lights, cutoff shields, and light timers to decrease light intensity and duration. The Space Force must use lighting with no ultraviolet emissions that attract insects (Longcore and Rich 2017).
3. The Space Force must submit the plans described in the project description to the Service for review and approval prior to conducting project activities. This includes the contingency plan for accidental dewatering or toxic spill (AM-11), the final plan for intentional dewatering (AM-13), and the final Habitat Mitigation and Monitoring Plan (see section above and AM-7, 24).

REPORTING REQUIREMENTS

Pursuant to 50 CFR 402.14(i)(3), the Space Force must report the progress of the action and its impact on the species to the Service as specified in this incidental take statement. Please note that we are using our office's section 7 email account, fw8venturasection7@fws.gov, for reports.

1. The Space Force will provide a written report due by January 30 for each fiscal year (October to September) that activities are conducted pursuant to this biological opinion. The annual report must include documentation of the impacts of the proposed activities on beach layia and California red-legged frog; results of biological surveys and observation records; documentation of the number of individuals of California red-legged frogs captured, injured, or killed; the date, time, and location of any form of take; approximate size and age of those individuals taken; and a description of relocation sites or rehabilitation outcomes for captured individuals. The report should also include a discussion of any problems encountered implementing the terms and conditions and other protective measures, recommendations for modifying the terms and conditions to enhance the conservation of federally listed species, and any other pertinent information.

These reports will assist us in evaluating future measures for the protection of federally listed species in the action area. We encourage you to submit recommendations regarding modification of or additional measures that would improve or maintain protection of listed species while simplifying compliance with the Act.

a. The beach layia portion of the report must also include: *(i)* the acreages of suitable habitat for beach layia that were impacted by the project; *(ii)* datasheets detailing beach layia seed collection and storage information; *(iii)* subsequent topsoil salvage and storage methods; *(iv)* the locations of habitat mitigation sites in relation to the extent of known beach layia populations; *(v)* and the results of habitat mitigation area seeding, weed removal, and topsoil salvage efforts.

b. The California red-legged frog portion of the report must also include: *(i)* the total number of California red-legged frog killed or injured, including a description of the circumstances of the mortalities or injuries if known; *(ii)* and the number and size of any California red-legged frog adults/subadults, tadpoles, and egg masses relocated from the action area, the date and time of relocation, and a description of relocation sites.

c. The Habitat Mitigation and Monitoring Plan portion of the report must also include: *(i)* a summary of all completed work, monitoring visits, and all wildlife observed in the restoration areas; *(ii)* adequacy of slope and stream bank protection and the extent of erosion and sedimentation into Honda Creek (if any); *(iii)* the acreages and locations of beach layia habitat mitigation areas; *(iv)* methods utilized during invasive species removal; *(v)* annual observations indicating the success or failure of beach layia and California red-legged frog habitat mitigation areas; *(vi)* and management recommendations.

DISPOSITION OF DEAD OR INJURED SPECIMENS

As part of this incidental take statement and pursuant to 50 CFR 402.14(i)(1)(v), upon locating a dead or injured California red-legged frog, the Space Force must make an initial notification within 3 working days of its finding by telephone and in writing to the Ventura Fish and Wildlife Office (805-644-1766). The report must include the date, time, location of the carcass, a photograph, cause of death or injury, if known, and any other pertinent information.

The Space Force must take care in handling injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. The Space Force must transport injured animals to a qualified veterinarian. Should any treated California red-legged frog survive, the Space Force must contact the Service regarding the final disposition of the animal(s).

The remains of California red-legged frogs must be placed with educational or research institutions holding the appropriate State and Federal permits, such as the Santa Barbara Natural History Museum (Contact: Paul Collins, Santa Barbara Natural History Museum, Vertebrate Zoology Department, 2559 Puesta Del Sol, Santa Barbara, California 93460, (805) 682-4711, extension 321).

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The conservation recommendations below are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information and can be used by the Space Force to fulfill their 7(a)(1) obligations.

1. We recommend the Space Force conduct beach layia topsoil salvage and seed collection at the proper time following seed set. We recommend the Space Force coordinate with our office when planning topsoil salvage and seed collection efforts to ensure implementation of best practices.
2. We recommend the Space Force limit the duration of beach layia topsoil storage to the extent practicable to help reduce potential damage to the associated seed bank. We also recommend the Space Force spread topsoil piles to the depth at which they collected the topsoil, surround the topsoil by waddles (made from weed-free materials) to reduce potential erosion, and avoid covering topsoil with any type of tarp to prevent solarization. We recommend Space Force avoid locating topsoil storage immediately adjacent to high weed infestation areas.
3. To promote beach layia recovery goals, we recommend that the Space Force use the project's topsoil salvage and habitat restoration efforts as research opportunities involving seed bank viability and outplanting success. We recommend the Space Force collect additional beach layia data that would help inform recovery efforts including information on the species' ecological tolerances, genetics, pollinators, and other restoration efforts.
4. We recommend the Space Force investigate the efficacy of capture and relocation of California red-legged frogs to determine if use of this minimization measure reduces adverse effects of project actions on the species. As part of this, the Space Force should note information on repeat capture and behavior of individuals post-movement.
5. We recommend the Space Force install approved mufflers on mechanized equipment (particularly when using impact/pile drivers capable of generating over 100 dB noise levels) or install a temporary sound wall during construction to reduce noise disturbance to California red-legged frogs and other wildlife in the near vicinity.

6. We recommend the Space Force advise qualified biologists to remove non-native aquatic animals such as bullfrogs, crayfish, and brown bullhead, which may prey on California red-legged frogs, whenever they detect these during project monitoring activities, in compliance with State laws.
7. We recommend the Space Force advise qualified biologists to relocate other native reptiles or amphibians found within work areas to suitable habitat outside of project areas if such actions are in compliance with State laws. Specifically for the southwestern pond turtle, we recommend following these suggested avoidance and minimization measures and reporting to the Service their efficacy:
    a. Service-approved biologist(s) will be present on site during all construction activities occurring in southwestern pond turtle habitat.
    b. Prior to the start of daily construction activities, Service-approved biologist(s) will survey the work sites for southwestern pond turtles, checking beneath all parked vehicles and heavy equipment before project activities commence.
    c. If biologist(s) observe a southwestern pond turtle within a designated work area and construction activities cannot avoid it, all work will stop in the immediate area (within 164 feet of the individual) until a Service-approved biologist(s) can relocate the animal or until it has left the work area of its own accord.
    d. Service-approved biologist(s) will relocate southwestern pond turtles captured during surveys or construction activities to the nearest suitable habitat outside of the project area but within the Honda Creek watershed and no more than 2 miles from the capture site. Service-approved biologists may only capture southwestern pond turtles by hand or dip net and transport in buckets separate from other species. When capturing and removing southwestern pond turtles from the project area, the Service-approved biologist(s) must minimize the amount of time they hold animals in captivity. In addition, Service-approved biologist(s) must maintain southwestern pond turtles in a manner that will not expose them to temperatures or any other environmental conditions that could cause injury or undue stress.
    e. The Space Force will follow the Declining Amphibian Populations Task Force fieldwork code of practice to avoid conveying diseases between work sites (DAPTF 1998) and will clean all equipment between use following protocols that are also suitable for aquatic reptiles.
8. We recommend the Space Force minimize movement of work equipment to the degree possible across the project area to further reduce transport of weeds. We recommend the Space Force designate equipment to work in specific areas and stage vehicles in laydown areas as close as possible to respective work areas.

The Service requests notification of the implementation of any conservation recommendations so we may be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats.

REINITIATION NOTICE

This concludes formal consultation on the action(s) outlined in the request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, the exemption issued pursuant to section 7(o)(2) may have lapsed and any further take could be a violation of section 4(d) or 9. Consequently, we recommend that any operations causing such take cease pending reinitiation.

If you have any questions about this biological opinion, please contact Erin Arnold of my staff at (805) 677-3343, or by electronic mail at erin_arnold@fws.gov.

Sincerely,

Stephen P. Henry
Field Supervisor

APPENDICES

APPENDIX A

Appendix A. Central coast scrub and central dune scrub mixes for the Upland Habitats mitigation plan.

Central Coastal Scrub Mix	Central Dune Scrub Mix
Artemisia californica	*Artemisia californica*
Baccharis pilularis	*Baccharis pilularis*
Eriogonum parvifolium	*Eriogonum parvifolium*
Isocoma menziesii	*Leptosyne gigantea*
Leptosyne gigantea	*Lupinus chamissonis*
Salvia mellifera	*Lupinus arboreus*

APPENDIX B

Appendix B. Coastal brackish and freshwater marsh planting mixes for the Wetlands and Waters habitat mitigation plan and Non-Native Tree Mitigation Area.

Salt/Brackish Marsh Mix	Freshwater Marsh Mix
Bolboschoenus maritimus	*Artemisia douglasiana*
Distichlis spicata	*Baccharis glutinosa*
Frankenia salina	*Juncus textilis*
Jaumea carnosa	*Salix lasiolepis*
Schoenoplectus americanus	*Schoenoplectus acutus*
Schoenoplectus pungens	*Typha latifolia*

APPENDIX C

Appendix C. Success criteria required under other permits for performance standards outlined through the first three-year monitoring period. Survival rate is the primary performance standard that UPRR will use to determine project success (Althouse and Meade 2022, Appendix G, pp. 13–14).

Feature	Performance Criteria and Assessment Method	Year 1	Year 2	Year 3
Train Landscape Contractors	Biologist provides training regarding protected biological resources and target weeds for all workers who implement or maintain restoration areas.	100%	100%	100%
Plant Installation	Survival Rate	>75%	>60%	>50%
Weed Eradication	Percent cover of non-native weeds	<25%	<25%	<25%
Erosion Control and Water Quality (slope and streambank protection)	Rills, gullies, or sediment loads shall be repaired or removed. Repaired areas shall be protected from erosion with biodegradable materials and/or revegetated prior to the next rain event.	As needed	As needed	As needed
Willow Height	Approximate the average height of patches of willows to the nearest foot.	<1 foot	2 feet	>4 feet

By the fifth year, the UPRR intends to meet the following additional performance standards:

1. Five years post-construction, 75 percent native absolute live cover within the project area.
2. Five years post-construction, less than 15 percent non-native absolute live cover within the project area.

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PERSONAL COMMUNICATIONS

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APPENDIX D. SHPO CONCURRENCE LETTER (NOVEMBER 8, 2023)

State of California • Natural Resources Agency
Gavin Newsom, *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
Armando Quintero, *Director*

Julianne Polanco, State Historic Preservation Officer
1725 23rd Street, Suite 100, Sacramento, CA 95816-7100
Telephone: (916) 445-7000 FAX: (916) 445-7053
calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

November 8, 2022

Reply in Reference to: USAF_2022_1012_001

Lt. Col Nicholas C. Van Elsacker
Commander, 30th Civil Engineer Squadron
1172 Iceland Avenue
Vandenberg AFB, CA 93437-6011

VIA ELECTRONIC MAIL

Re: Section 106 Consultation for La Cañada Honda Bridge Replacement, Vandenberg SFB, Santa Barbara County

Dear Lt. Col. Van Elsacker:

The United States Air Force (USAF) is initiating consultation with the State Historic Preservation Officer (SHPO) regarding its effort to comply with Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. 306108), as amended, and its implementing regulation found at 36 CFR Part 800.

The USAF are proposing to replace the La Cañada Honda Bridge, a 13-span, 541-foot-long deck plate girder bridge with a 541.6-foot-long deck plate girder bridge at Honda Canyon on the southern part of the base. A full project description can be found in the USAF's consultation letter.

The USAF identified 17 historic properties within the area of potential effects (APE), 11 of which were formally determined eligible for National Register of Historic Places (NRHP) inclusion. Evaluations of the six remaining properties resulted in the USAF's determination that the La Canada Honda Railroad Bridge (P-42-041388) and two archeological sites identified as CA-SBA-2920 and CA-SBA-4224 do not meet NRHP inclusion requirements and that three archaeological deposits, CA-SBA-530, CA-SBA-669 and CA-SBA-677 are eligible for NRHP inclusion. The USAF are currently consulting with the Santa Ynez Band of Chumash Indians on their findings and determinations and will continue consultation with the Tribe for the life of the project.

The USAF are requesting concurrence with its APE definition, NRHP eligibility determinations for six properties and a finding of adverse effect. Upon review of the information provided, the SHPO has the following comments:

1. The SHPO does not object to the USAF's APE definition as illustrated in Figures 4a-c in the provided report *Identification of Historic Properties And Finding of*

Adverse Effect La Cañada Honda Bridge Replacement Vandenberg Space Force Base Santa Barbara County, California (Ryan and McCormick: September 2022).

2. The SHPO concurs that the La Canada Honda Railroad Bridge (P-42-041388) and archeological sites CA-SBA-2920 and CA-SBA-4224 do not meet NRHP eligibility requirements.

3. The SHPO concurs that CA-SBA-530, CA-SBA-669 and CA-SBA-677 are eligible for NRHP inclusion under Criterion D because they contain data that contribute to a greater understanding of the Early, Middle, and Late periods along the central coast of California."

4. The SHPO agrees that proper implementation of the avoidance and minimization measures proposed by the USAF will avoid adverse effects to the remaining NRHP eligible properties or those being treated as eligible for the purposes of this undertaking.

5. The SHPO concurs that the Undertaking will adversely affect CA-SBA-530. The SHPO anticipates that the USAF will notify the Advisory Council on Historic Preservation of its adverse effect finding and provide a draft Memorandum of Agreement to the SHPO for review and comment.

This letter is being sent in electronic format only. Please confirm receipt of this letter. Please notify Ed Carroll, Historian II, at Ed.Carroll@parks.ca.gov or (619) 678-2609 if there are any questions or to request a hard copy of this letter.

Sincerely,

Julianne Polanco
State Historic Preservation Officer

APPENDIX E. MEMORANDUM OF AGREEMENT

MEMORANDUM OF AGREEMENT
BETWEEN
THE DEPARTMENT OF THE AIR FORCE
AND THE
CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE LA CAÑADA HONDA BRIDGE REPLACEMENT PROJECT,
SANTA BARBARA COUNTY, CALIFORNIA

WHEREAS, the Department of the Air Force, Vandenberg Space Force Base (DAF), determined that the replacement of the La Cañada Honda Bridge (Undertaking), is subject to compliance with Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. § 300101 et seq.) (NHPA), as amended and re-codified, and its implementing regulations at 36 Code of Federal Regulations (CFR) § 800; and

WHEREAS, DAF, in consultation with the California State Historic Preservation Officer (SHPO), determined and documented the Undertaking's area of potential effects (APE) in accordance with 36 CFR § 800.4(a) (Attachment A) to encompass the project footprint and all project-related activities in addition to access routes, staging areas, crane pads, and the temporary re-location of underground utility lines; and

WHEREAS, the Undertaking requires the removal and replacement of the current La Canada Honda Bridge with a new 541.6 foot long deck plate girder bridge supported by five newly cast concrete piers that would be 7 feet in diameter and 95 feet tall (Attachment C, Section 1.1); and

WHEREAS, DAF determined there are 11 cultural resources determined eligible for the National Register of Historic Places (NRHP) inclusion, including CA-SBA-530, and one cultural resource, CA-SBA-3804, is assumed to be a historic property for the purposes of this Undertaking only within the APE, and the SHPO concurred with these findings in a letter dated 8 November 2022; and

WHEREAS, DAF invited the federally recognized Santa Ynez Band of Chumash Indians (Tribe), to consult on historic properties that may have religious and cultural significance and by an email dated March 7, 2023 restated their choice to consult (Attachment B) and will be afforded the opportunity to participate in the implementation of this MOA and the Undertaking, and has been invited to concur in this MOA; and

WHEREAS, DAF determined that CA-SBA-530, a large, prehistoric coastal residential site consisting of dense shell midden, bone and stone tools, faunal remains, shell beads and ornaments, and other residential refuse, is eligible for NRHP inclusion under Criterion D for its potential to contribute to a greater understanding of the Early, Middle, and Late periods along the central coast of California and the SHPO concurred in a letter dated 8 November 2022; and

WHEREAS, DAF determined the Undertaking will adversely affect CA-SBA-530 and the SHPO concurred in a letter dated 8 November 2022; and

WHEREAS, DAF notified the Advisory Council on Historic Preservation (ACHP) by letter on 7 March 2023 of the adverse effect finding pursuant to 36 CFR § 800.6(a)(1) and on 6 April 2023 the ACHP responded by letter that they did not elect to participate in consultation; and

NOW, THEREFORE, DAF and the SHPO agree the Undertaking shall be implemented in accordance with the following stipulations to take the Undertaking's effects on historic properties into account.

STIPULATIONS

The DAF will ensure that the following measures are carried out:

I. Area of Potential Effects

A. If DAF determines that conditions necessitate the revision of the APE subsequent to the execution of this MOA, DAF shall notify the consulting parties of any proposed change to the APE by providing a map and narrative description of the change.

B. These parties shall then have fifteen (15) days, or as extended by the Signatories, to comment on the modified APE. If a party does not comment on the modified APE within fifteen (15) days, no further consultation by the DAF is required.

C. If the Signatories cannot agree or DAF receives an objection from a consulting party on the revision, then DAF shall attempt to resolve the dispute following the Dispute Resolution Stipulation in Section VIII of this MOA.

D. If the Signatories reach mutual agreement on the proposed revisions, then DAF shall provide a final map and narrative description of the revisions in writing to all consulting parties no later than fourteen (14) days following such agreement.

II. Mitigation Measures

A. DAF shall mitigate and resolve adverse effects to historic properties by carrying out a program of controlled archaeological excavations where the proposed Undertaking would result in adverse effects upon significant archaeological deposits in accordance with the research design in Chapter 3 of *Historic Property Treatment Plan Resolving Adverse Effects to CA-SBA-530* (Lebow et al. 2023), and included here as Attachment C. Data recovery will be in accordance with the ACHP's standard treatment for recovering significant information. Adverse effects to CA-SBA-530 would be resolved to acceptable levels by employing the following mitigation measures:

1. Pier 3 Crane Pad/Causeway Excavation: Adverse effects from constructing the Pier 3 crane pad and excavations to install a sheet pile wall will be resolved by archaeological data recovery excavations using the following methods:

a. After sheet piling is installed to shore the slope, the upper 3 feet of soil for the crane pad will be removed by an excavator to expose the depth where archaeological deposits were encountered during testing. Soil will be removed in 15-20 centimeter lifts with an archaeologist guiding and monitoring the removal. The excavator will sit on a causeway built of fill previously placed on the canyon floor.
b. When a surface 3 feet deep is exposed, archaeologists will manually excavate up to three (3) shovel test pits, each up to 90 centimeters (3 feet) deep, to help guide placement of larger data recovery units. No more than two 1 by 1 meter (3 by 3 feet) or the equivalent four 0.5 by 1 meter (1.5 by 3 feet) units will then be excavated to capture a sample of the deposit. Those larger units will recover data to partially resolve adverse effects.
c. After data recovery excavations are complete, the excavator will remove the 3-foot-thick layer that was just sampled. The soil will again be removed in 15–20 centimeter lifts, under the guidance of an archaeologist.
d. After a new surface is available, the strategy used in the first layer will be repeated. This process of careful mechanical soil removal to engineering specifications, followed by exploration and data recovery via no more than two excavation units will then proceed. This process will be repeated in 3 foot layers until the final engineered depth of 24 feet is reached.

2. Excavation units will be terminated after two successive culturally-sterile levels are excavated or the maximum depth of the archaeological deposit is reached. A map of the disturbance area is provided as Figure 1-5 in *Historic Property Treatment Plan Resolving Adverse Effects to CA-SBA-530* (Lebow et al. 2023) and is included here as Attachment D. Ground disturbing project activities throughout the entire site will be monitored by an archaeologist and a representative from the Santa Ynez Band of Chumash Indians.
3. Following data recovery excavations, archaeological remains and all associated forms will be sent to a local laboratory for processing and data entry. Screen residues will be size sorted through the field mesh size grade, separated by material/artifact class, counted and weighed, and cataloged. When the catalog is complete, materials will be given to specialists for technical analysis. Results of technical analyses will be included in the technical report referenced below in Section III Part E.

III. Treatment of Historic Properties

A. Initial project ground disturbing activities within 100 feet of archaeological sites recorded within the APE will be monitored by an archaeologist and a representative from the Santa Ynez Band of Chumash Indians.

B. Adverse effects to eight historic properties (CA-SBA-212, -534, -539, -670, -678, -682, -1129, and -1145) will be avoided by implementing the following Historic Property Protection Measures.
   1. **Historic Property Protection Measure 1, CA-SBA-212:** The project would avoid adverse effects along the beach access road by prohibiting grading, limiting vegetation removal to mowing and/or hand-removal, and improving the road by placing a layer of geo-textile fabric along the road alignment and then placing a clean, imported road base cap on top of the fabric to create the desired 12-foot-wide access road. Exclusionary

fencing would be placed along the entire length of the road as it runs through CA-SBA-212, on both sides, to prevent vehicles and equipment from inadvertently driving into the site. Exclusionary fencing also would be placed around the perimeter of the borrow pit/staging area. Finally, wherever exclusionary fencing is installed, signage would be placed indicating the surrounding area is environmentally sensitive.

2. **Historic Property Protection Measure 2**, **CA-SBA-539:** The project has been designed to avoid adverse effects to archaeological deposits within the existing access road by ceasing use of the existing road, adding a layer of clean fill suitable for planting endemic plant species, planting endemic plants species, and blocking access points at both ends of this route to exclude vehicles.

3. **Historic Property Protection Measure 3, CA-SBA-539:** The South Abutment Access Routes, Temporary Crane Pads, and South Abutment Replacement would avoid adverse effects to CA-SBA-539 by limiting these elements to areas within the UPRR ROW that are previously disturbed and areas that do not include archaeological deposits that contribute to the NRHP eligibility of CA-SBA-539, and by placing solid barrier along the eastern margin of the south abutment access route to keep equipment out of areas with intact archaeological deposits.

4. **Historic Property Protection Measure 4, CA-SBA-670:** The North Abutment Accessway would avoid adverse effects to CA-SBA-670 by installing exclusionary fencing or rigid barrier along the base of the eastern cutbank beginning at the south end of the cutbank, extending along the entire western boundary of CA-SBA-670, and extending an additional 60 meters north of the boundary of CA-SBA-670. Exclusionary fencing or rigid barrier will remain in place during all project activities. A qualified archaeologist will inspect the fencing or barrier prior to the start of project activities and monitor this location periodically for the duration of construction activities.

5. **Historic Property Protection Measure 5, CA-SBA-670:** Acacia mitigation would avoid adverse effects to CA-SBA-670 by restricting access to the area of acacia mitigation to foot traffic only and restricting acacia removal techniques to hand cutting only above the ground surface. Additionally, revegetation of the area would be limited to hand-broadcasting seed and/or hydroseeding.

6. **Historic Property Protection Measure 6, CA-SBA-669:** Improvement of the existing access road can be accomplished without adverse effects to CA-SBA-669 by constructing a block retaining wall along the western road margin to protect the portion of the site containing significant archaeological deposits. No ground-disturbing activities shall occur within the significant portion of CA-SBA-669 west of STPs 62, 63, 64, and 65 (Figure 11-2, Gerber et al. 2022). The retaining wall and associated road improvements will remain in place after completion of the Project. Additionally, exclusionary fencing would be installed around the significant archaeological deposits and within 60 meters of CA-SBA-669 (Figure 11-4, Gerber et al. 2022). Fencing would remain in place through all project construction activity. A qualified archaeologist will inspect the fencing prior to Project construction.

7. **Historic Property Protection Measure 7, CA-SBA-530:** Constructing the Pier 2 access road would avoid adverse effects to CA-SBA-530 by adopting a strategy of avoidance in the form of capping the site along the access route. No ground-disturbing activities would occur along the access route. Instead, the access road would be established on top of the existing ground surface using geotextile fabric and imported gravel. The geotextile fabric would be placed by hand along the proposed access route, followed by installation of temporary exclusionary fencing along both sides of the access route as it runs through CA-SBA-530. Lastly, starting at the intersection of the Pier 2 access road and the railroad tracks, imported gravels would be placed on top of the geotextile fabric to create the road base. Only rubber-tired vehicles would be used to place the road base. Road base shall be placed from the intersection with the railroad tracks to the Pier 2 abutment excavation area at the lower causeway. Upon completion of the bridge replacement project, road base material shall be removed starting at the Pier 2 abutment and working north to the intersection with the railroad tracks. Geotextile fabric shall then be removed by hand, followed by ESA fencing. Installation and removal of the Pier 2 access road and exclusionary fencing would be monitored by a qualified archaeologist.

C. Adverse effects to seven historic properties (CA-SBA-534, -677, -678, -682, -1129, and -1145) will not occur during project implementation because archaeological deposits that contribute to the eligibility of these historic properties are absent within the area of ground disturbance.

D. DAF will not authorize the execution of any project activity that may affect [36 CFR§ 800.16(i)] historic properties in the APE until the requirements set forth in sections B and C of this stipulation have been met.

E. DAF shall prepare a draft technical report that includes all data collected during the Data Recovery.

1. DAF shall submit the draft technical report to the Tribe for 45-day review period. DAF shall address any comments received within the 45-day review period and prepare a revised draft technical report.
2. DAF shall submit the revised draft technical report to SHPO who shall have 30 days to review and approve the report. If the SHPO fails to comment within 30 days, DAF may finalize the report. If the SHPO comments, DAF and SHPO shall consult to resolve any comments. Should DAF and SHPO be unable to come to agreement and finalize the report, DAF shall follow Stipulation VIII.
3. DAF will provide copies of the final report to all parties of this MOA, the Council, and the Central Coast Information Center.

F. DAF shall produce interpretive materials to promote cultural resources awareness and provide information about the prehistory of the VSFB region.

1. Results of the data recovery excavations will be used to develop interpretive materials for public use. Interpretive materials would include a brochure, pamphlet, or poster that presents the results of the data recovery excavations in a manner appropriate for a public audience. The interpretive material will be designed in coordination with VSFB cultural resources staff and produced in accordance with Section 4.7 of the Historic Property Treatment Plan included in Attachment C.

IV. Discoveries and Unanticipated Effects

A. If DAF determines during implementation of the MOA or construction of the Undertaking that either the implementation of the MOA or the Undertaking will affect a previously unidentified property that may be eligible for the National Register or affect a known historic property in an unanticipated manner, DAF will address the discovery or unanticipated effect in accordance with 36 CFR § 800.13(b)(3). DAF at its discretion may hereunder, and pursuant to 36 CFR § 800.13(c), assume any discovered property to be eligible for inclusion in the National Register.

B. Discoveries and unanticipated effects will be treated following the procedures outlined in Volume 5, Section 7.3 of the VSFB Integrated Cultural Resource Management Plan (ICRMP: Lebow and Moratto 2005).

C. Discoveries and treatment of human remains will follow the procedures outlined in Volume 5, Chapter 8 of the VSFB Integrated Cultural Resource Management Plan (ICRMP; Lebow and Moratto 2005).

D. Discoveries and treatment of NAGPRA-defined objects will comply with NAGPRA and 43 CFR 10.

V. Administrative Provisions

A. Definitions

This MOA and documentation produced under it us the definitions provided in 36 CFR § 800.16.

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B. Professional Qualifications

Pursuant to Section 112(a)(1)(A) of the National Historic Preservation Act (54 U.S.C. § 306131(a)(1)(A) and 36 CFR § 800.2(a)(1), DAF shall ensure that all work carried out in accordance with this MOA will be done by or under the direct supervision of appropriate historic preservation professionals who meet the Secretary of the Interior's Professional Qualifications Standards and that all documentation produced under this MOA is prepared by or under the direct supervision of a person meeting the Secretary of Interior's Professional Qualifications Standards in the relevant discipline (48 FR 44738-9). DAF will ensure that contractors retained for services also meet these professional qualifications standards.

C. **Communication**

Electronic mail (email) will serve as the official correspondence method for all communications regarding this Agreement and its provisions. See Attachment E for a list of contacts and email addresses. Contact information in Attachment E may be updated as needed without an amendment to this MOA. It is the responsibility of each party to this MOA to immediately inform DAF of any change in name, address, email address, or phone number of any point-of-contact. DAF will forward this information to all signatories and concurring parties by email.

D. **Documentation Standards**
Activities prescribed by stipulations II and III of this MOA shall conform to the *Secretary of the Interior's Guidelines for Archaeology and Historic Preservation* (48 FR 44716-44740), as well as to applicable standards and guidelines established by the SHPO.

E. **Curation and Curation Standards**
DAF shall ensure that, to the extent permitted under §§ 5097.98 and 5097.991 of the California Public Resources Code, the materials and records resulting from the historic preservation work prescribed by this MOA are curated in accordance with 36 CFR Part 79.

VI. Confidentiality

The parties to this MOA acknowledge that Historic Properties covered by this MOA are subject to the provisions of Section 304 of the NHPA and 36 CFR § 800.11 (c), relating to the disclosure of sensitive archaeological site information and, having so acknowledged, will ensure that all actions and documentation prescribed by this MOA are consistent with Section 304 of the NHPA, 36 CFR § 800.11(c), and 5 U.S.C. § 552, as amended (Freedom of Information Act).

VII. Changes to the Undertaking

If DAF determines that the Undertaking must be modified, it will consult with the SHPO to determine the effect of such modifications. If the modifications are determined to constitute additional adverse effects to historic properties, additional mitigation to resolve adverse effects shall be determined in consultation with the SHPO and appended to this MOA.

VIII. Dispute Resolution

A. Should either signatory to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, DAF shall consult to resolve the objection. If DAF determines that such objection cannot be resolved, DAF shall:

1. Forward all documentation relevant to the dispute, including DAF's proposed resolution, to the ACHP. The ACHP shall provide the DAF with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, DAF shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP and signatories, and provide them with a copy of this written response. DAF will then proceed according to its final decision.

2. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, DAF may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, DAF shall prepare a written response that considers any timely comments regarding the dispute from the signatories to the MOA and provide them with a copy of such written response.

3. DAF's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged**.**

IX. Reporting Requirements

A. DAF shall provide all parties to this MOA an Annual Report documenting actions carried out pursuant to this MOA via email. The reporting period shall commence one year from the date of the MOA's execution.

B. The Annual Report shall address the following: status of Undertaking (e.g., phases complete and upcoming), scheduling changes, status of mitigation, any objections received and how they were resolved, status of any proposed amendments, and any interest from the public in the Undertaking and/or terms of the MOA.

C. DAF shall coordinate a meeting with all MOA parties to be scheduled within ninety (90) days of distribution of the Annual Report, or another mutually agreed upon date, to discuss activities carried out pursuant to this MOA during the preceding year and activities scheduled for the upcoming year. This meeting, should it be deemed unnecessary, may be cancelled by mutual consent of the Signatories.

X. Amendments

A. This MOA may be amended when such an amendment is agreed to in writing by all Signatories. The amendment will be effective on the date a copy signed by the Signatories is filed with the ACHP.

B. If the Signatories cannot agree to appropriate terms to amend the MOA, either Signatory may terminate the MOA in accordance with Stipulation XI.

C. Each Appendix to this MOA may be individually revised or updated through consultation with the Signatories without requiring amendment of the MOA, unless the Signatories

through such consultation decide otherwise. Within thirty (30) days of revising any Appendix, the Federal Agency shall append any revised document to this MOA and share the final revised document with all consulting parties.

XI. Termination

A. If either Signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other party to attempt to develop an amendment per Stipulation X. If within thirty (30) days (or another time period agreed to by both signatories) an amendment cannot be reached, either signatory may terminate the MOA upon written notification to the other signatory.

B. Once the MOA is terminated, and prior to work continuing for the Undertaking, DAF must either (a) execute an MOA pursuant to 36 CFR § 800.6 or (b) request, consider, and respond to the comments of the ACHP under 36 CFR § 800.7. DAF shall notify the SHPO as to the course of action it will pursue.

XII. Duration

This MOA will expire if its terms are not carried out within five (5) years from the date of its execution. Prior to such time, DAF may consult with the SHPO to reconsider the terms of the MOA and amend it in accordance with Stipulation XI.

XIII. Anti-Deficiency Act

This MOA does not authorize the expenditure or reimbursement of any funds, nor does it obligate the partners to expend appropriations or enter into any contract or other obligation. All obligations of the partners under this MOA shall be subject to the availability of funds and resources for such purposes. No provision in this MOA will be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. § 1341.

EXECUTION of this MOA by DAF and the SHPO, its filing with the ACHP under 36 CFR § 800.6(b)(1)(iv), and implementation of its terms shall evidence that DAF has afforded the ACHP an opportunity to comment on the Undertaking and its effects on historic properties, and that DAF has taken the effects of the Undertaking's effects on historic properties into account.

MEMORANDUM OF AGREEMENT
BETWEEN
THE UNITED STATES AIR FORCE
AND THE
CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE LA CAÑADA HONDA BRIDGE REPLACEMENT PROJECT,
SANTA BARBARA COUNTY, CALIFORNIA

SIGNATORY:

Space Launch Delta 30 of the United States Space Force, Vandenberg Space Force Base

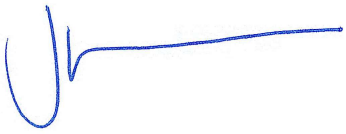
By: VAN ELSACKER.NICHOLAS.CLARENCE.1251205554 Digitally signed by VAN ELSACKER.NICHOLAS.CLARENCE.1251205554 Date: 2023.10.20 16:02:19 -07'00' Date: _____

NICHOLAS C. VAN ELSACKER, Lt Col, USAF
Commander, 30th Civil Engineer Squadron

MEMORANDUM OF AGREEMENT
BETWEEN
THE UNITED STATES AIR FORCE
AND THE
CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE LA CAÑADA HONDA BRIDGE REPLACEMENT PROJECT,
SANTA BARBARA COUNTY, CALIFORNIA

SIGNATORY:

California State Historic Preservation Officer

By:  Date: 10/24/2023

Julianne Polanco
State Historic Preservation Officer

MEMORANDUM OF AGREEMENT
BETWEEN
THE UNITED STATES AIR FORCE
AND THE
CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE LA CAÑADA HONDA BRIDGE REPLACEMENT PROJECT,
SANTA BARBARA COUNTY, CALIFORNIA

INVITED CONCURRING SIGNATORY:

Santa Ynez Band of Chumash Indians



Kenneth Kahn
Aug 16, 2023 12:50 PM PDT

By: _____ Date: _____

The Honorable Kenneth Kahn
Tribal Chairman

Attachment A Area of Potential Effects

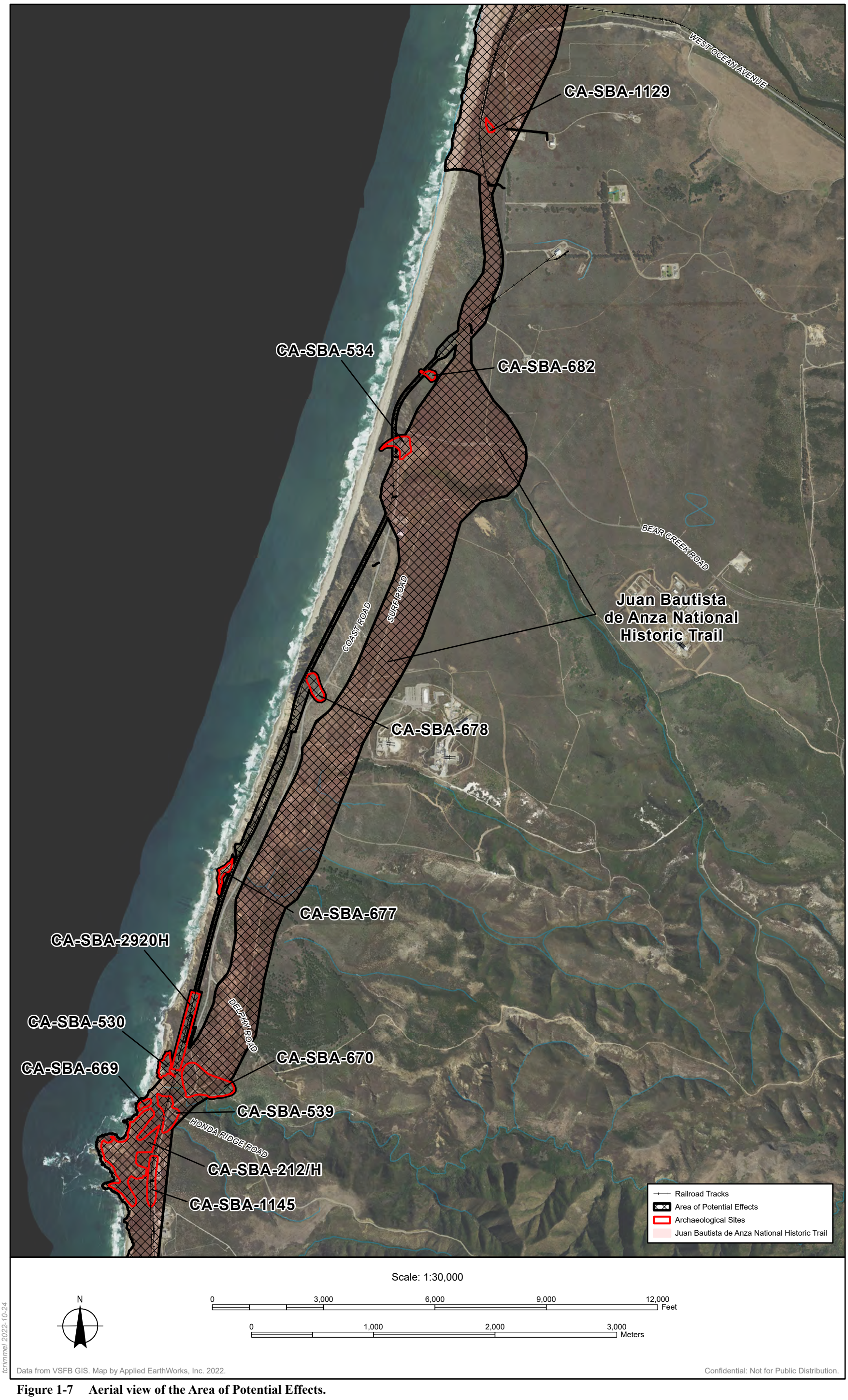


Figure 1-7 Aerial view of the Area of Potential Effects.

Attachment B Correspondence

DEPARTMENT OF THE AIR FORCE
UNITED STATES SPACE FORCE
SPACE LAUNCH DELTA 30

Lieutenant Colonel Nicholas C. Van Elsacker
Commander, 30th Civil Engineer Squadron
1172 Iceland Ave
Vandenberg SFB CA 93437-6011

Ms. Julianne Polanco
State Historic Preservation Officer
Department of Parks and Recreation
Office of Historic Preservation
P.O. Box 942896
Sacramento CA 94296-0001

Dear Ms. Polanco

Space Launch Delta 30 (SLD 30) of the United States Space Force (USSF), Vandenberg Space Force Base (VSFB), in cooperation with the Union Pacific Railroad (UPRR), proposes to replace the railroad bridge that spans the mouth of Honda Canyon on the southern part of the base. The proposed La Cañada Honda Bridge Replacement project would remove the existing 13-span, 541-foot-long deck plate girder bridge and six supporting steel towers and, in its place, construct a new 541.6-foot-long deck plate girder bridge that would have six 90-foot-long spans supported by five newly cast concrete piers. Additional project elements would include establishing access routes, staging areas, and crane pads, and the temporary re-location of underground utility lines that use the railroad bridge to cross Honda Canyon. USSF determined the proposed action is an undertaking subject to compliance with Section 106 (codified at 54 United States Code [USC] 306108) of the National Historic Preservation Act of 1966, as amended (54 USC 300101 et seq.: Historic Preservation). USSF will comply with Section 106 using the implementing regulations (Title 36 Code of Federal Regulations [CFR] Part 800). Per 36 CFR §800.3, SLD 30 is consulting the California State Historic Preservation Officer (SHPO) and the Santa Ynez Band of Chumash Indians.

SLD 30 carried out a reasonable and good-faith cultural resources investigation that fulfills federal agency responsibilities pursuant to 36 CFR §800.4(a)-(d) and 36 CFR §800.5(a)-(d). Details of the investigation are provided in the attachment. SLD 30 identified the Area of Direct Impacts and then identified the Area of Potential Effects (APE); 17 cultural resources are within the APE.

SLD 30 requests concurrence from the SHPO that the APE for the La Cañada Honda Bridge Replacement is adequately delineated. Additionally, SLD 30 presents the following federal agency determinations of ineligibility for 2 archaeological resources and 1 built environment resource for concurrence from the SHPO:

a. CA-SBA-2920 does not meet any of the NRHP criteria of significance and thus is not eligible for listing in the NRHP;

b. CA-SBA-4224 does not meet any of the NRHP criteria of significance and thus is not eligible for listing in the NRHP; and

c. P-42-041388, the La Cañada Honda railroad bridge, does not meet any of the NRHP criteria of significance and thus is not eligible for listing in the NRHP.

Additionally, SLD 30 presents the following federal agency determination of eligibility for concurrence from the SHPO:

a. CA-SBA-530 is eligible for listing on the NRHP under Criterion D because it contains archaeological deposits with data that contribute to a greater understanding of the Early, Middle, and Late periods along the central coast of California and those deposits retain integrity;

b. CA-SBA-669 is eligible for listing on the NRHP under Criterion D because it contains archaeological deposits with data that contribute to a greater understanding of the Late Middle Period along the central coast of California and those deposits retain integrity; and

c. CA-SBA-677 is eligible for listing on the NRHP under Criterion D because it contains archaeological deposits with data that contribute to a greater understanding of the Middle-to-Late Transition Period along the central coast of California and those deposits retain integrity.

Additionally, pursuant to 36 CFR 800.5, SLD 30 applied the criteria of adverse effect provided at 36 CFR 800.5(1)(a) to 12 historic properties within the APE and determined that 11 historic properties would not be adversely affected by the La Cañada Honda Bridge Replacement given implementation of six historic property protection measures as described within the attachment. SLD 30 requests concurrence from the SHPO on the assessment of no adverse effects to the historic properties listed in the table below:

Historic Properties in the APE with No Adverse Effects

Historic Property	Historic Property Protection Measure (HPPM)
CA-SBA-212 (prehistoric component)	HPPM 1
CA-SBA-534	None
CA-SBA-539	HPPM 2, HPPM 3
CA-SBA-669	HPPM 6
CA-SBA-670	HPPM 4, HPPM 5
CA-SBA-677	None
CA-SBA-678	None
CA-SBA-682	None
CA-SBA-1129	None
CA-SBA-1145 (prehistoric component)	None
CA-SBA-3804	None

Lastly, pursuant to 36 CFR 800.5, SLD 30 applied the criteria of adverse effect provided at 36 CFR 800.5(1)(a) to 12 historic properties within the APE and determined that 1 archaeological historic properties would be adversely affected by the La Cañada Honda Bridge Replacement. SLD 30 requests concurrence from the SHPO on the following assessments of adverse effects: CA-SBA-530 would be adversely affected by the La Cañada Honda Bridge Replacement because the proposed project would result in the physical destruction of or damage to all or part of the property [36 CFR 800.5(a)(2)(i)] resulting from the following project-related ground-disturbance within archaeological deposits that contribute to the significance of the site: excavation to a depth of 24 feet below ground surface into the north bank at the mouth of Honda Canyon for the purposes of creating the Pier 3 crane pad/causeway extension.

As such, pursuant to 36 CFR 800.5(d)(2), SLD 30 determined that the proposed La Cañada Honda Bridge Replacement would result in adverse effects to one historic property and shall consult further to resolved the adverse effects pursuant to 36 CFR 800.6.

If you have any questions or require additional information, please contact Christopher Ryan, Cultural Resources Manager, 30 CES/CEIEA at (805) 605-0748 or via e-mail at christopher.ryan.7@spaceforce.mil. Thank you for your assistance with this undertaking.

Sincerely

VAN ELSACKER.NICHOLAS.CLARENCE.1251205554

Digitally signed by VAN ELSACKER.NICHOLAS.CLARENCE.1251205554
Date: 2022.10.04 17:08:20 -07'00'

NICHOLAS C. VAN ELSACKER, Lt Col, USAF
Commander

Attachment:
Cultural Resources Investigations Supporting Section 106 Compliance for the UPRR Honda Trestle Replacement Project (Gerber et al. 2022)

State of California • Natural Resources Agency
Gavin Newsom, *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
Armando Quintero, *Director*

Julianne Polanco, State Historic Preservation Officer
1725 23rd Street, Suite 100, Sacramento, CA 95816-7100
Telephone: (916) 445-7000 FAX: (916) 445-7053
calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

November 8, 2022

Reply in Reference to: USAF_2022_1012_001

Lt. Col Nicholas C. Van Elsacker
Commander, 30th Civil Engineer Squadron
1172 Iceland Avenue
Vandenberg AFB, CA 93437-6011

VIA ELECTRONIC MAIL

Re: Section 106 Consultation for La Cañada Honda Bridge Replacement, Vandenberg SFB, Santa Barbara County

Dear Lt. Col. Van Elsacker:

The United States Air Force (USAF) is initiating consultation with the State Historic Preservation Officer (SHPO) regarding its effort to comply with Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. 306108), as amended, and its implementing regulation found at 36 CFR Part 800.

The USAF are proposing to replace the La Cañada Honda Bridge, a 13-span, 541-foot-long deck plate girder bridge with a 541.6-foot-long deck plate girder bridge at Honda Canyon on the southern part of the base. A full project description can be found in the USAF's consultation letter.

The USAF identified 17 historic properties within the area of potential effects (APE), 11 of which were formally determined eligible for National Register of Historic Places (NRHP) inclusion. Evaluations of the six remaining properties resulted in the USAF's determination that the La Canada Honda Railroad Bridge (P-42-041388) and two archeological sites identified as CA-SBA-2920 and CA-SBA-4224 do not meet NRHP inclusion requirements and that three archaeological deposits, CA-SBA-530, CA-SBA-669 and CA-SBA-677 are eligible for NRHP inclusion. The USAF are currently consulting with the Santa Ynez Band of Chumash Indians on their findings and determinations and will continue consultation with the Tribe for the life of the project.

The USAF are requesting concurrence with its APE definition, NRHP eligibility determinations for six properties and a finding of adverse effect. Upon review of the information provided, the SHPO has the following comments:

1. The SHPO does not object to the USAF's APE definition as illustrated in Figures 4a-c in the provided report *Identification of Historic Properties And Finding of*

Adverse Effect La Cañada Honda Bridge Replacement Vandenberg Space Force Base Santa Barbara County, California (Ryan and McCormick: September 2022).

2. The SHPO concurs that the La Canada Honda Railroad Bridge (P-42-041388) and archeological sites CA-SBA-2920 and CA-SBA-4224 do not meet NRHP eligibility requirements.

3. The SHPO concurs that CA-SBA-530, CA-SBA-669 and CA-SBA-677 are eligible for NRHP inclusion under Criterion D because they contain data that contribute to a greater understanding of the Early, Middle, and Late periods along the central coast of California."

4. The SHPO agrees that proper implementation of the avoidance and minimization measures proposed by the USAF will avoid adverse effects to the remaining NRHP eligible properties or those being treated as eligible for the purposes of this undertaking.

5. The SHPO concurs that the Undertaking will adversely affect CA-SBA-530. The SHPO anticipates that the USAF will notify the Advisory Council on Historic Preservation of its adverse effect finding and provide a draft Memorandum of Agreement to the SHPO for review and comment.

This letter is being sent in electronic format only. Please confirm receipt of this letter. Please notify Ed Carroll, Historian II, at Ed.Carroll@parks.ca.gov or (619) 678-2609 if there are any questions or to request a hard copy of this letter.

Sincerely,

Julianne Polanco
State Historic Preservation Officer

DEPARTMENT OF THE AIR FORCE
UNITED STATES SPACE FORCE
SPACE LAUNCH DELTA 30

Christopher Ryan
30th Civil Engineer Squadron
1028 Iceland Ave
Vandenberg SFB CA 93437-6010

October 12, 2022

Mr. Sam Cohen
Santa Ynez Band of Chumash Indians
P.O. Box 1032
Santa Ynez CA 93460

Dear Sam

Space Launch Delta 30 (SLD 30) of the United States Space Force (USSF), Vandenberg Space Force Base (VSFB), in cooperation with the Union Pacific Railroad (UPRR), proposes to replace the railroad bridge that spans the mouth of Honda Canyon on the southern part of the base. The proposed La Cañada Honda Bridge Replacement project would remove the existing 541-foot-long deck plate girder bridge and six supporting steel towers and, in its place, construct a new 541.6-foot-long deck plate girder bridge that would have six 90-foot-long spans supported by five newly cast concrete piers. Additional project elements would include establishing access routes, staging areas, and crane pads, and the temporary re-location of underground utility lines that use the railroad bridge to cross Honda Canyon. USSF determined the proposed action is an undertaking subject to compliance with Section 106 (codified at 54 United States Code [USC] 306108) of the National Historic Preservation Act of 1966, as amended (54 USC 300101 et seq.: Historic Preservation). USSF will comply with Section 106 using the implementing regulations (Title 36 Code of Federal Regulations [CFR] Part 800). Per 36 CFR §800.3, SLD 30 is consulting the California State Historic Preservation Officer (SHPO) and the Santa Ynez Band of Chumash Indians.

SLD 30 carried out a reasonable and good-faith cultural resources investigation that fulfills federal agency responsibilities pursuant to 36 CFR §800.4(a)-(d) and 36 CFR §800.5(a)-(d). Details of the investigation are provided in the attachment. SLD 30 identified the Area of Direct Impacts and then identified the Area of Potential Effects (APE); 17 cultural resources are within the APE.

Pursuant to 36 CFR 800.5, SLD 30 applied the criteria of adverse effect provided at 36 CFR 800.5(1)(a) to 12 historic properties within the APE and determined that 11 historic properties would not be adversely affected by the La Cañada Honda Bridge Replacement given implementation of six historic property protection measures as described within the attachment.

Additionally, pursuant to 36 CFR 800.5, SLD 30 applied the criteria of adverse effect provided at 36 CFR 800.5(1)(a) to the twelfth historic property within the APE and determined that that archaeological site would be adversely affected by the La Cañada Honda Bridge Replacement. As such, pursuant to 36 CFR 800.5(d)(2), SLD 30 determined that the proposed La Cañada Honda Bridge Replacement would result in adverse effects to one historic property and shall consult further to resolve adverse effects pursuant to 36 CFR 800.6.

SLD 30 is seeking any comments or concerns the Tribe may have about cultural resources with regard to the proposed undertaking. If you have any questions or require additional information, please do not hesitate to contact me. I can be reached at (805) 605-0748 or via email at christopher.ryan.7@us.af.mil. I would appreciate receiving any feedback as part of this consultation within the next 30 calendar days. Please feel free to let me know if you require additional time. Thank you for your assistance with this undertaking.

Sincerely

RYAN.CHRISTOPHER.D.1296630701 Digitally signed by RYAN.CHRISTOPHER.D.1296630701 Date: 2022.10.12 16:20:01 -07'00'

CHRISTOPHER RYAN
SLD 30 Tribal Liaison Officer

Attachment:
Cultural Resources Investigations Supporting Section 106 Compliance for the UPRR Honda Trestle Replacement Project (Gerber et al. 2022)

CC: Ms. Nakia Zavalla, SYBCI, Tribal Historic Preservation Officer
Ms. Wendy Teeter, SYBCI

NOCERINO, ERIC CIV USAF SSC 30 CES/CEIEA

From: Crystal Mendoza <cmendoza@chumash.gov>
Sent: Tuesday, March 7, 2023 4:07 PM
To: NOCERINO, ERIC CIV USAF SSC 30 CES/CEIEA
Cc: Sam Cohen; Nakia Zavalla; Wendy Teeter; Kelsie Shroll; Ed.Carroll@parks.ca.gov; KAISERSATT, SAMANTHA O CIV USSF SSC 30 CES/CEIEA
Subject: [URL Verdict: Unknown][Non-DoD Source] RE: {EXTERNAL} e106 for the La Cañada Honda Bridge Replacement

Good afternoon Eric,

We previously requested consultation on this project, can you please send over copies of the cultural resources investigation report (Gerber et al. 2022) and the historic property treatment plan (Lebow et al. 2022) for us to review.

Thank you,

Crystal Mendoza

Administrative Assistant | Cultural Resources

Santa Ynez Band of Chumash Indians | Tribal Hall

Phone: 805-325-5537

cmendoza@chumash.gov <mailto:cmendoza@chumash.gov>

www.sycculture.com <http://www.sycculture.com/>

From: NOCERINO, ERIC CIV USAF SSC 30 CES/CEIEA <eric.nocerino@spaceforce.mil <mailto:eric.nocerino@spaceforce.mil> >
Sent: Tuesday, March 7, 2023 3:05 PM
To: e106@achp.gov <mailto:e106@achp.gov>
Cc: Carroll, Ed@Parks <Ed.Carroll@parks.ca.gov <mailto:Ed.Carroll@parks.ca.gov> >; Sam Cohen <scohen@chumash.gov <mailto:scohen@chumash.gov> >; Nakia Zavalla <NZavalla@chumash.gov <mailto:NZavalla@chumash.gov> >; KAISERSATT, SAMANTHA O CIV USSF SSC 30 CES/CEIEA <samantha.kaisersatt@spaceforce.mil <mailto:samantha.kaisersatt@spaceforce.mil> >
Subject: {EXTERNAL} e106 for the La Cañada Honda Bridge Replacement

Good Afternoon,

I have attached the e106 form to notify the ACHP of a finding of adverse effect for the La Cañada Honda Bridge Replacement Project, Vandenberg Space Force Base, California. Please let me know if you would like copies of the cultural resources investigation report (Gerber et al. 2022) or the historic property treatment plan (Lebow et al. 2022) as they are too large to send via email. If requested, I can provide those documents through a secure file share. Please let me know if you have any questions.

v/r

Eric Nocerino, PhD. RPA

Cultural Resources Manager

SLD 30 CES/CEIEA

1028 Iceland Blvd.

Vandenberg Space Force Base, CA 93437-6010

W: 805-605-0748

M: 720-883-6507

April 6, 2023

Ms. Laura L. Miz
Deputy Base Civil Engineer
30th Civil Engineer Squadron
United States Space Force
1172 Iceland Avenue
Vandenberg Space Force Base, CA 93437-6011

Ref: *La Cañada Honda Bridge Replacement Project*
Vandenberg Space Force Base, Santa Barbara County, California
ACHP Project Number: 019420

Dear Ms. Miz:

On March 8, 2023, the Advisory Council on Historic Preservation (ACHP) received your notification and supporting documentation regarding the potential adverse effects of the referenced undertaking on a property or properties listed or eligible for listing in the National Register of Historic Places. Based upon the information you provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations, "Protection of Historic Properties" (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe our participation in the consultation to resolve adverse effects is needed.

However, if we receive a request for participation from the California State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer, affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Should the undertaking's circumstances change, consulting parties cannot come to consensus, or you need further advisory assistance to conclude the consultation process, please contact us.

Pursuant to 36 CFR § 800.6(b)(1)(iv), you will need to file the final Section 106 agreement document (Agreement), developed in consultation with the California SHPO and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the Agreement and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the NHPA.

Thank you for providing us with your notification of adverse effect. If you have any questions or require our further assistance, please contact Christopher Daniel at (202) 517-0223 or by e-mail at

cdaniel@achp.gov and reference the ACHP Project Number above.

Sincerely,



Artisha Thompson
Historic Preservation Technician
Office of Federal Agency Programs

DEPARTMENT OF THE AIR FORCE
UNITED STATES SPACE FORCE
SPACE LAUNCH DELTA 30

Lieutenant Colonel Nicholas C. Van Elsacker
Commander, 30th Civil Engineer Squadron
1172 Iceland Ave
Vandenberg SFB, CA 93437-6011

Ms. Julianne Polanco
State Historic Preservation Officer
Department of Parks and Recreation
Office of Historic Preservation
P.O. Box 942896
Sacramento CA 94296-0001

Dear Ms. Polanco,

The Department of the Air Force (DAF) is continuing consultation with the State Historic Preservation Officer (SHPO) for the La Cañada Honda Bridge Replacement Project on Vandenberg Space Force Base in Santa Barbara County. Continuing consultation is conducted in accordance with Section 106 (United States Code [USC] 306108) of the National Historic Preservation Act of 1966 as amended through 2016 (54 USC 300101 et seq.) and the implementing regulations (36 CFR Part 800). The Office of Historic Preservation (OHP) file number for this project is USAF_2022_1012_001. The Advisory Council on Historic Preservation (ACHP) was afforded the opportunity to comment pursuant to 36 CFR Part 800.6(a)(1), and the ACHP did not elect to participate in consultation to resolve adverse effects.

With this letter and its attachment, the DAF is submitting a Memorandum of Agreement (MOA) for your signature. The MOA describes the actions DAF will take to resolve adverse effects to one historic property, CA-SBA-530, that will be adversely affected by the project.

If you have any questions or require additional information, please contact Eric Nocerino, Cultural Resources Manager, 30 CES/CEIEA, 1028 Iceland Avenue, Building 11146, Vandenberg SFB; phone: 720-883-6507; e-mail: eric.nocerino@spaceforce.mil. Thank you for your assistance with this undertaking.

Sincerely

NICHOLAS C. VAN ELSACKER, Lt Col, USAF
Commander

Attachment:
Memorandum of Agreement Between the Department of the Air Force and the California State Historic Preservation Officer Regarding the La Cañada Honda Bridge Replacement Project, Santa Barbara County, California

Attachment C Historic Property Treatment Plan

Attachment D Disturbance/Mitigation Area

Attachment E Contacts

Vandenberg Space Force Base
Eric Nocerino, Cultural Resources Manager
805-605-0748 Office
720-883-6507 Mobile
eric.nocerino@spaceforce.mil

California State Historic Preservation Officer
Ed Carroll, Historian II
916-445-7006 Office
ed.carroll@parks.ca.gov

Santa Ynez Band of Chumash Indians
Nakia Zavala, Cultural Director
805-688-7997
nzavalla@chumash.gov

Attachment F References Cited

Gerber, Joyce L., Eric S. Nocerino, and Karin Pitts-Olmedo

2022 *Cultural Resource Investigations Supporting Section 106 Compliance for the UPRR Honda Trestle Replacement Project, Vandenberg Space Force Base, Santa Barbara County, California*, with contributions by Terry Joslin-Azevedo, Thomas Crimmel, Victoria M. Eisenhart, Clayton G. Lebow, Rebecca L. McKim, Michelle L. Newcomb, Simone Schinsing, Keith Warren, and Edward Yarbrough. Applied EarthWorks, Inc., Lompoc, California. Prepared for Althouse and Meade, Inc., Paso Robles, California.

Lebow, Clayton, G. and Michael J. Moratto

2005 *Management of Prehistoric Archaeological Resources*. Vandenberg Air Force Base Integrated Cultural Resources Management Plan, Vol. 5, Michael J. Moratto and Barry A. Price, general editors. Applied EarthWorks, Inc., Fresno, California. Submitted to U.S. Air Force, 30 CES/CEVPC, Vandenberg Air Force Base, California.

Lebow, Clayton, G. Eric S. Nocerino, and Joyce L. Gerber

2022 *Historic Property Treatment Plan Resolving Adverse Effects to CA-SBA-530 in accordance with Advisory Council on Historic Preservation Standard Treatments for the Recovery of Significant Information from Archaeological Sites, UPRR Honda Trestle Replacement Project, Vandenberg Space Force Base, Santa Barbara County, California (813-22-035)*. Applied EarthWorks, Inc., Lompoc, California. Submitted to 30th Civil Engineer Squadron, Installation Management Flight, Environmental Section, Environmental Assets (30 CES/CEIEA), Vandenberg Space Force Base, California.

APPENDIX F. CCC CONCURRENCE LETTER (OCTOBER 18, 2023), STAFF REPORT AND EXHIBITS

CALIFORNIA COASTAL COMMISSION
455 MARKET STREET, SUITE 300
SAN FRANCISCO, CA 94105
FAX (415) 904-5400
TDD (415) 597-5885

October 18, 2023

LynneDee Althouse
1602 Spring Street
Paso Robles, CA 93446
CC: Steve Cheney, UPRR

Subject: Consistency Certification CC-0003-22 (UPRR Honda Bridge Replacement Project)

Dear Ms. Althouse,

On October 13, 2023, the California Coastal Commission (Commission) conditionally concurred with the above-referenced consistency certification. The Commission found that the project was consistent with the California Coastal Management Program. The condition included in the Commission's concurrence is attached to this letter. Please contact me at Wesley.Horn@Coastal.CA.gov should you have any questions regarding this matter.

Sincerely,

Wesley Horn
Environmental Scientist

SPECIAL CONDITION

1. Revised Habitat Restoration Plan. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, UPRR shall provide a revised version of the Habitat Restoration Plan (Plan) dated September 2023, for the review and approval of the Executive Director, that includes the following:

- A hydrologic plan, grading plan, and ecological analysis for the proposed frog pool habitats within Honda Creek.
- Provide species list and rationale for the species proposed within Habitat Mitigation Area (HMA) 7 and HMA-8. Salt heliotrope is typically found in wetland habitats.
- Confirm that site preparation will occur prior to carrying out planting, including live-stake propagation.
- An Integrated Pest Management Plan that includes information on weed eradication conducted by hand and mechanical removal. For any herbicides proposed to be used provide information on and how, when and where herbicides application would occur.
- Itemized seed mixtures and rationale for poundage of individual plant seeds proposed within each HMA.
- A proposed plant palette for each HMA.
- Identification of the reference sites to be used for each HMA.
- Specification of the weather conditions in the monitoring criteria of California red-legged frog (*Rana draytonii*) to evaluate successful recolonization of restored areas.
- Detailed descriptions of how native animal species observations will be performed.
- In addition to the five-year final monitoring report, annual monitoring reports shall be submitted to the Executive Director for review. Annual monitoring reports shall include: an assessment of HMA conditions and issues such as trash, erosion, invasive vegetation, or pests; a general description of the vegetation conditions along with photos from photo points; a determination as to whether the HMAs have met that year's performance standards; and whether the HMAs expected to meet Year 5 performance standards.
- Detailed criteria for development and approval of any adaptive management strategies determined to be necessary if the HMAs are not meeting performance standards.

CALIFORNIA COASTAL COMMISSION
455 MARKET STREET, SUITE 300
SAN FRANCISCO, CA 94105-2219
FAX (415) 904-5400
Voice (415) 904-5200

F9a

Filed	4/14/23
Six Months:	10/14/23
Extended to:	11/21/23
Staff:	WH-SF
Staff Report:	9/21/23
Hearing Date:	10/13/23

STAFF REPORT: REGULAR CALENDAR

Consistency Certification No.: **CC-0003-22**

Applicant: Union Pacific Railroad

Project Location: Mile Post (MP) 304.88 Union Pacific Railroad, Honda Canyon, Vandenberg Space Force Base, Santa Barbara County

Project Description: Replace the existing, dilapidated Honda Bridge with a new bridge in the same location and alignment, temporary relocation of a fiber optic cable, and follow-up authorization for emergency repairs consisting of placement and compaction of fill materials within an eroded slope failure area, creation of a diversion channel, and placement of rock rip rap along the toe of the eroded slope.

Staff Recommendation: Concurrence

SUMMARY OF STAFF RECOMMENDATION

The Union Pacific Railroad (UPRR) proposes to replace Honda Bridge, which provides rail access across Honda Creek on central Vandenberg Space Force Base (VSFB) in Santa Barbara County. The existing bridge is more than 125 years old and its steel supports have deteriorated, threatening the integrity of the bridge. Replacing the bridge is needed to maintain viability of the 351-mile Los Angeles – San Diego – San Luis

Obispo Rail Corridor (LOSSAN rail corridor), including commercial rail transport of two daily freight lines and continued public travel of up to six daily passenger trains.

The replacement bridge would be built using newly cast concrete piers and concrete abutments and includes the temporary relocation of an existing fiber optic cable. To support the project, construction activities would require access improvements and staging areas on UPRR and VSFB property. These areas have been selected to avoid and minimize adverse impacts on wetlands, environmentally sensitive habitat areas (ESHA), cultural resources, and water quality.

With the measures included and committed to by UPRR in its consistency certification, staff recommends the Commission find the project consistent with all Coastal Act policies except 30240(a). The project is located within an ESHA but is not a "use dependent on the resources" as required under Section 30240(a). However, staff also recommends the Commission find that not allowing the project to proceed would be inconsistent with the water quality, public access and recreation, and air quality/energy consumption policies of the Coastal Act because it would prevent benefits from accruing to coastal resources that are inherent in the project and mandated by the policies of the Coastal Act. Those benefits include maximization of existing and future public access, facilitation of public transit, minimization of vehicle miles traveled, improvement of air and water quality by reducing traffic congestion, and avoidance of water quality impacts if the bridge were to degrade to the point where parts or all of it were to fall into Honda Creek or into surrounding sensitive riparian habitat.

Commission staff therefore recommends the Commission find the project creates a conflict between the resource-dependent use and habitat protection elements of the ESHA policy of the Coastal Act (Section 30240(a)) on the one hand, and the water quality, public access, and energy conservation policies of the Coastal Act (Sections 30210, 30213, 30231, 30232, 30252, and 30253) on the other. Staff further recommends the Commission resolve this conflict through the conflict resolution policy, Section 30007.5, and that, with the avoidance, minimization and mitigation measures included, authorization of this project represents a resolution of this conflict which is, "on balance, most protective of significant coastal resources."

The proposed project has been designed to be structurally sound and safe from coastal hazards. However, because of uncertainty regarding the future rate of sea level rise in the project area and limitations in the modeling of erosion within Honda Canyon, UPRR has committed to seeking a limited authorization term of 40 years and to return to the Commission with a Coastal Hazard Adaptation and Implementation Plan at the time of its expiration (i.e. 2063). This plan would identify any strategies necessary for protecting, relocating, or otherwise adapting the bridge to maintain safety from coastal hazards.

The project has the potential to adversely impact cultural resources. However, in consultation with culturally affiliated Tribes, the project has been designed to minimize potential impacts. Such minimization measures include limiting access routes to areas

with the least amount of known resources, installation of fencing to prevent equipment and personnel from entering sensitive areas, the presence of Native American cultural monitors for any ground disturbing activities, and closure and restoration of an existing access road that contains cultural resources.

The staff therefore recommends that the Commission concur with Consistency Certification CC-0003-22. The standard of review is Chapter 3 of the Coastal Act. The motion to concur is on page 5 of this report.
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EXHIBITS

Exhibit 1 – Vicinity Map

Exhibit 2 – Project Overview

Exhibit 3 – Existing and Proposed Bridge

Exhibit 4 – Project Plans

Exhibit 5 – Habitat Impacts

Exhibit 6 – Culvert Repair

Exhibit 7 – Emergency Repair

APPLICANT'S CONSISTENCY CERTIFICATION

The Union Pacific Railroad (UPRR) has certified that the proposed activity (CC-0003-22) complies with the California Coastal Management Program (CCMP) and will be conducted in a manner consistent with that program.

MOTION AND RESOLUTION

Motion:

I move that the Commission conditionally concur with consistency certification CC-0003-22 on the grounds that, if modified in accordance with the condition recommended by staff, the project described therein would be consistent with the enforceable policies of the California Coastal Management Program (CCMP)

Staff recommends a **YES** vote on the motion. Passage of this motion will result in conditional concurrence with the certification and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.

Resolution:

The Commission hereby **conditionally concurs** with consistency certification CC-0003-22 by UPRR on the grounds that, if modified in accordance with the condition recommended by staff, the project described therein would be consistent with the enforceable policies of the CCMP.

SPECIAL CONDITION

1. **Revised Habitat Restoration Plan.** PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, UPRR shall provide a revised version of the Habitat Restoration Plan (Plan) dated September 2023, for the review and approval of the Executive Director, that includes the following:

    - A hydrologic plan, grading plan, and ecological analysis for the proposed frog pool habitats within Honda Creek.
    - Provide species list and rationale for the species proposed within Habitat Mitigation Area (HMA) 7 and HMA-8. Salt heliotrope is typically found in wetland habitats.
    - Confirm that site preparation will occur prior to carrying out planting, including live-stake propagation.
    - An Integrated Pest Management Plan that includes information on weed eradication conducted by hand and mechanical removal. For any

herbicides proposed to be used provide information on and how, when and where herbicides application would occur.
- Itemized seed mixtures and rationale for poundage of individual plant seeds proposed within each HMA.
- A proposed plant palette for each HMA.
- Identification of the reference sites to be used for each HMA.
- Specification of the weather conditions in the monitoring criteria of California red-legged frog (*Rana draytonii*) to evaluate successful recolonization of restored areas.
- Detailed descriptions of how native animal species observations will be performed.
- In addition to the five-year final monitoring report, annual monitoring reports shall be submitted to the Executive Director for review. Annual monitoring reports shall include: an assessment of HMA conditions and issues such as trash, erosion, invasive vegetation, or pests; a general description of the vegetation conditions along with photos from photo points; a determination as to whether the HMAs have met that year's performance standards; and whether the HMAs expected to meet Year 5 performance standards.
- Detailed criteria for development and approval of any adaptive management strategies determined to be necessary if the HMAs are not meeting performance standards.

FINDINGS AND DECLARATIONS

A. Background and Project Description

The project is within the boundaries of Vandenberg Space Force Base (VSFB) operated by the Department of the Air Force (Air Force). UPRR manages and operates the land upon which the bridge is located as an existing railroad right-of-way (ROW) that passes through VSFB. The project site is located approximately 550 feet inland from the shoreline with the existing bridge deck situated at an elevation of approximately 114 feet high relative to the North American Vertical Datum of 1988 (NAVD88). High relief cliffs bound La Honda Canyon and Honda Creek to the north and south **(Exhibit 2)**.

UPRR describes the history and current status of the bridge in its consistency certification (CC) as follows:

> The existing bridge was originally constructed in the 1890's. In 1932, the existing bridge received a new steel girder superstructure and significant tower strengthening to accommodate E70 live loading with 50% impact. In 1955, the bridge was converted from open deck to ballast deck and concrete approach slabs were added at the abutments. No other significant rehabilitation or repairs are known between 1955 and the present day. The steel has extensive corrosion and section loss throughout the bridge due to the high chloride environment near

the ocean. Based on the deteriorated condition of the existing bridge, UPRR has determined that it should be replaced.

The existing Honda Bridge consists of a six-span, 541-foot-long deck plate girder (DPG) with two concrete abutments and five steel towers situated atop 13 bents. The new bridge would be a six-span, 541.6-foot-long DPG, with five concrete cast piers spaced approximately 90 feet apart. Each pier would be 90-feet-high and would consist of 7-foot-diameter columns. Each column would be constructed atop cast-in-place concrete pile caps and would be anchored belowground by steel piles. The depth of the piles would vary between 15 to 60 feet. Both the north side and the south side of the bridge would include new abutments situated atop concrete caps supported by retaining walls. Operation of the rail corridor would for the most part be unaffected by project activities, except for a two-week period where rail operations within the corridor would be paused while the existing DPG superstructure is removed and replaced with the new DPG superstructure atop the newly constructed columns.

Definitions of some common bridge terms are provided below[1]. Figures showing the general layout of the existing and proposed bridges are included in **Exhibit 3**.

- Bent: A supporting frame consisting of posts or piles with bracing, caps, and sills.
- Deck: The flooring of a bridge.
- Deck Plate Girder: A girder built of structural plates and angles.
- Pile: A long, heavy post or pole of timber, concrete, or steel driven into the ground to compact the soil, to shut out water, to carry a vertical load, or to resist a horizontal force.
- Span: The distance between two supports holding up a structure. The structure itself that rests on the supports, as a span of a bridge. To reach from one support to another by means of a structure.

Demolition of the existing bridge and construction of the replacement bridge is anticipated to begin in January 2024 and be complete in December 2025, an approximately two-year construction term. Mobilization, staging, demolition, and construction would take place within several areas over multiple phases, as summarized below.

Beach and Access Road

To replace the bridge, equipment and personnel would need to access the area within Honda Creek below the bridge. The beach and Honda Creek is accessible via an existing, 2,900-foot long dirt access road located approximately 0.4 miles from the bridge. This road would provide access to the south laydown area and bridge construction site but it would be expanded to at least 12 feet wide to accommodate construction equipment. Road improvements would include addition of road base and vegetation clearance from the inland side to widen the road where necessary.

[1]Definitions are from the University of Iowa, Lichtenberger Engineering Library http://sdrc.lib.uiowa.edu/eng/bridges/WaddellGlossary/GlossA.htm

The lower portion of the existing access road located north of the south laydown area would be further widened during construction to 35 feet to allow for crane access onto the beach area/canyon bottom. Road widening would require temporary slope protection along the cut slope face. The slope face would need to be near vertical to protect sensitive cultural resources on the upper terrace, west of the cut slope. After project completion, this area of slope protection would be restored. The 35-foot-wide lower beach access road would extend all the way to the construction area directly under the bridge. One 60-inch-diameter culvert, approximately 60 feet long would be installed under the lower access road to convey runoff from an existing ephemeral drainage onto the beach.

A 470-foot-long, temporary sheet pile storm protection wall would begin where the access road exits the bluff onto the beach and would continue along the toe of the beach access road and then turn north to cross Honda Canyon. The temporary sheet pile storm protection wall would consist of a 30-foot-high sheet pile driven to a depth of 20 feet so that a 10-foot-tall portion of the sheet piles would remain exposed above the sand. The sheet piles would be installed using a vibratory driver.

Laydown Areas
A total of three laydown areas would be prepared for temporary equipment staging, storage of construction materials, and stockpiling of excavated fill and road base. The south laydown area would be graded to a depth of 6 feet to generate approximately 14,500 cubic yards of fill material which would be used to construct the temporary construction causeway under the bridge. The north laydown area would be graded to a depth of 2 feet deep to generate approximately 7,300 cubic yards of fill which would be used for the north access road that would be used to access the construction area for the north abutment. The laydown/office area consists of an existing disturbed area totaling 3.4 acres and would be used for temporary offices, materials, and parking of vehicles during construction.

South Abutment Access Road and Crane Pad
Construction of the south abutment would require a new connection from Coast Road to the area where the crane would be staged. A permanent 20-foot-wide, K-rail-lined access road would be constructed within the ROW and run parallel to the tracks on both the western and eastern sides. One 30-foot by 30-foot crane pad would be constructed near the southern edge of Honda Canyon on each side of the access road in the area of the proposed southern abutment.

North Abutment Access Road and Crane Pad
Construction of the north abutment would require a new 20-foot-wide access road beginning west of the railroad and continuing to the area where a second 30-foot by 30-foot crane pad would be constructed near the northern edge of Honda Canyon in the area of the proposed northern abutment.

Bridge Construction Area

A temporary causeway would be constructed across Honda Canyon to allow cranes and other construction equipment to access the area under the bridge for proposed Piers 3, 4, 5, and 6. The causeway would be accessible from the lower beach access road and would be constructed using 17,000 cubic yards of fill acquired from the south laydown area to create a minimum 7-foot-thick work platform. Stormwater flows from Honda Creek would be conveyed through the causeway via six 72-inch diameter corrugated metal pipes that would extend the length of the causeway. Also, to protect the causeway from high flows through Honda Creek, the eastern side would receive temporary protection consisting of rip rap or other slope protection material at a 1.5:1 slope. A third temporary crane pad would be required within the north slope of Honda Creek northwest of Pier 3. The crane pad would require excavation into the north slope and would be stabilized by a sheet pile wall. A small crane pad to provide access to the area east of Pier 2 would be located east of the bridge adjacent to Pier 3. This crane pad would be located on the temporary causeway and consist of fill material acquired from excavation of the southern laydown area.

Fiber Optic Cable Relocation

The project also includes temporary relocation of one mile of fiber optic cables located within the existing Honda Creek Bridge and adjacent ROW north and south of the bridge. After the bridge replacement is complete, the cables would be relocated back to the new bridge.

The cables would be temporarily rerouted away from the bridge from the north staging area along the shoulder of Coast Road which would be buffered by K-rails. Vegetation along a 6-foot-wide strip adjacent to the road shoulder would be mowed to allow for cable rerouting. The cables would be temporarily buried at any driveway crossings. The cables would connect back to the existing utility lines within the UPRR ROW south of the beach access road. Relocating the fiber optic cables would require two jack and bore pits (maximum 38 feet-long by 15 feet-wide by seven feet-deep) and two receiving pits (maximum 20 feet-long by 15 feet-wide by seven feet-deep). One jack and bore pit and one receiving pit would be located adjacent to the railroad track near north laydown area and one jack and bore pit and receiving pit would be located at the intersection of Coast Road and an unnamed beach access road at the southern end of the project site.

If the fiber optic cables are damaged during bridge replacement, UPRR would replace the entire length of cables in this corridor. The length of total cable replacement would be seven miles, beginning at milepost (MP) 299 and extending to MP 307. The cables would be pulled back to the main connection boxes using existing manholes along the railroad ROW within disturbed areas next to the tracks.

Existing Access Road Abandonment

At the completion of the project, UPRR has also proposed to abandon an existing access road in order to protect cultural resources within the road from disturbance. The site would be covered with a layer of clean native fill material, re-vegetated with native species, and both ends of the road would be blocked to prevent future vehicular or pedestrian access.

Emergency Permit for the North Bank of Honda Creek
On January 13, 2023, the Executive Director approved emergency permit G-9-23-0009 for UPRR after high floods on January 9, 2023, eroded the north bank of Honda Creek and the supports for the Honda Creek Bridge within the area of the north bank. The Executive Director determined that immediate action was necessary to ensure that the bridge structure would not fail **(Exhibit 7)**. The emergency project included: removal of eroded material from the floodplain and creation of a diversion channel, creation of a staging area, stabilization of the beach access road, creation of a causeway across Honda Creek for equipment and personnel to access the slope failure area, installation of a permeable flood diversion structure, placement and compaction of fill material in the area of the eroded slope of the north bank, placement of 3,349 cubic yards of rock rip rap along the toe of the eroded slope, and placement of permeable rock for stormwater protection.

Condition 6 of that emergency permit specified that the authorized development is considered temporary and subject to removal unless and until a regular coastal development permit (CDP) or consistency certification (CC) permanently authorizing the work is approved or concurred with. In addition to the bridge replacement and associated development activities described above, UPRR's CC is requesting the legally required follow-up authorization for the development included in emergency permit number G-9-23-0009.

Development from the emergency permit to be incorporated into the subject CC includes: the diversion channel, staging area, stabilization of beach access road, the placement and compaction of fill material in the area of the eroded toe slope, and the rock rip rap. The diversion channel is located within the footprint of the proposed causeway while the staging area and access road would be used for construction of the proposed replacement bridge. The fill material within the north bank and rip rap along the toe would remain in their current location and configuration. The temporary causeway for the emergency repair, the flood diversion structure, and permeable rock were all removed following completion of the work included in the emergency CDP.

Other Commission Approved Projects in the Area of the Proposed Project
On March 18, 2021, the Commission approved negative determination (ND) ND-0002-21 for the Department of the Air Force (Air Force) to repair two existing culverts located upstream of the proposed bridge replacement project, where Honda Creek passes underneath Coast Road **(Exhibit 6)**. Each culvert was 13 feet in diameter and 330-feet-long, consisting of corrugated metal pipe that had corroded and become clogged with silt. The Air Force project included: installation of 10-foot-diameter high-density polyurethane liners inside each of the existing culverts to prevent further corrosion and collapse; construction of concrete inlet and outlet structures; construction of an approximately 24-foot-wide and 910-foot-long temporary access route within the area of Honda Creek beneath Honda Bridge; construction of a 4,340 square foot temporary staging/turnaround area near the culvert outlets and a 2,500 square foot turnaround area along an existing unpaved access road; and manually removing 0.5 acre of

vegetation, primarily Arroyo willow (*Salix lasiolepsis*), to ground level. The peak flow velocity following completion of the repairs has been modeled at 15.57 feet-per-second which is significantly higher compared to pre-culvert repair peak flow velocity of 8.75 feet-per-second. The higher peak flow velocity and resulting flows within Honda Creek as a result of the culvert repair have been factored into the design of the proposed bridge replacement.

B. Consultations and Other Agency Approvals

Department of the Air Force
UPRR has applied to the Air Force for permission to use VSFB property for staging areas and VSFB roads for construction equipment access. The Air Force is acting as lead agency and preparing an Environmental Assessment under the National Environmental Policy Act (NEPA) for the proposed project.

United States Fish and Wildlife Services (USFWS)
On April 4, 2022, the Air Force provided the USFWS with a Biological Assessment (BA) pursuant to Section 7(a)(2) of the federal Endangered Species Act (ESA) detailing the potential effects to federally listed threatened and endangered taxa in relation to the proposed project. The USFWS issued a Biological Opinion (BO) on September 23, 2022, which concluded that the project is not likely to jeopardize the continued existence of the taxa analyzed.

Federal Aviation Administration (FAA)
In accordance with 14 CFR Part 77.9 the FAA was notified for use of temporary project construction cranes. The FAA conducted an aeronautical study and a determination of hazard to navigation was received on June 30, 2022. The study concluded that the temporary use of cranes would not be a hazard to air navigation, requiring that cranes be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M.

Regional Water Quality Control Board (RWQCB)
Projects involving discharges of dredged or fill material to waters of the United States that require permits from the Army Corps of Engineers under Clean Water Act Section 404 may also be required to obtain authorization from the Regional Water Quality Control Board (RWQCB) under Clean Water Act Section 401. A 401 Certification and 404 permit would be obtained prior to commencement of project activities.

United States Army Corp of Engineers
The United States Army Corp of Engineers (Corps) has permitting authority for the proposed project under Section 404 of the Clean Water Act. UPRR is coordinating with the Corps concerning the need for permits for the activity.

Pursuant to Section 307(c)(3)(A) of the Coastal Zone Management Act (“CZMA”) the Corps cannot issue an individual permit until the Commission either concurs or is conclusively presumed to concur in a federal consistency certification. Commission concurrence with UPRR’s CC would constitute evidence of CZMA consistency.

California State Historic Preservation Officer (SHPO)
On October 12, 2022, the Air Force initiated formal consultation with SHPO in accordance with Section 106 of the National Historic Preservation Act (NHPA). On November 8, 2022, the Air Force received a SHPO comment letter that concurs with National Register of Historic Places (NRHP) eligibility determinations for six properties and a finding of adverse effect. Findings on consultation with SHPO are included in Section H below.

Tribal Outreach and Consultations
As part of the NEPA process, the Air Force carried out Native American consultation via email with Nakia Zavalla, the Santa Ynez Band of Chumash Indians' (SYBCI) Tribal Chairman appointee for Section 106 consultations. On October 12, 2022, the Air Force formally notified the SYBCI of the Proposed Action and requested tribal comments. The Air Force has stated that it would continue consultation with the SYBCI for the life of the Project.

Commission staff also conducted outreach to tribes identified on the Native American Heritage Commission (NAHC) Native American Contact list for Santa Barbara County. The tribes contacted include the Barbareno/Ventureno Band of Mission Indians, Santa Ynez Band of Chumash Indians, Chumash Council of Bakersfield, Coastal Band of the Chumash Nation, Northern Chumash Tribal Council, and San Luis Obispo County Chumash Council. On December 10, 2022, Commission staff received a response from the Northern Chumash Tribal Council asking for a formal consultation. Commission staff responded to the Tribe by offering a consultation meeting and subsequently conducted a consultation on July 17, 2023. The outcome of this consultation is discussed further in Section H of this staff report.

C. Environmentally Sensitive Habitat Areas

Section 30107.5 of the Coastal Act states:

> "Environmentally sensitive area" means 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.

Section 30236 of the Coastal Act states:

> Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (l) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.

Section 30240 of the Coastal Act states:

> (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.
>
> (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Environmentally Sensitive Habitat Areas (ESHA) are areas 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. Coastal Act Section 30240 subdivision (a) states that ESHA shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. Coastal Act Section 30240 subdivision (b) states that development in areas adjacent to ESHA and parks and recreation areas shall not degrade those areas or be incompatible with their continued presence.

UPRR's consistency certification generally describes the area of the bridge replacement as follows:

> Honda Bridge is a large north/south railroad trestle over Honda Creek at Union Pacific (UP) MP 304.88. The creek enters the Action Area via two large culverts below Coast Road, approximately 350 feet upstream from the bridge where it is lined by central coast arroyo willow riparian habitat. Freshwater vegetation transitions to a coastal salt marsh floodplain near the bridge and transitions to foredune and coastal strand near the creek's outlet to the ocean. California redlegged frogs (*Rana draytonii*) currently utilize the freshwater habitat within Honda Creek from ponded areas near the current bridge pedestals upstream to and beyond the Coast Road culverts. During and after high rainfall events, surface flow is present from the culverts to the ocean. As flow decreases, a sand berm often closes the creek mouth, and a small estuarine lagoon may form. The lagoon may remain full all year or dry up during the summer leaving a varied habitat of wet sand, gravel, and wetland vegetation. Estuary conditions and the amount of open water are dependent upon variation in seasonal and interannual rainfall, tides, and storm waves and may vary greatly annually and interannually.
>
> East of Honda Bridge and south of the creek and associated riparian, the habitat transitions to central coastal scrub which continues south and west on the canyon's south slope, transitioning to central coastal scrub/iceplant west of the bridge. The west-facing fill slope below Coast Road and above the culverts is central coastal scrub/iceplant which transitions to Acacia/iceplant on the canyon's northern slopes which are iceplant-dominated west of the bridge.

The southern portion of the Action Area west of Coast Road is a gently sloping marine terrace dominated by central coastal scrub and central coastal scrub/iceplant with one pre-existing disturbed/cleared area used by VSFB as a spoils/borrow pit. An existing dirt road currently provides access to Honda Beach to the north and the VSFB spoils/borrow pit to the west via a small spur road. The beach access road leaves Coast Road approximately 0.5 miles south of Honda Bridge and passes over the terrace through central coastal scrub/iceplant before terminating at Honda Beach. An ephemeral drainage that originates south of Honda Ridge Road in the Tranquillon Ridge flows west adjacent to Honda Ridge Road and through a culvert under Coast Road and the railroad. This feature only conveys water during storm events. The lower reach of this drainage in the Study Area exhibits an unvegetated bed of sand and cobbles with iceplant and coastal scrub on the adjacent slopes.

The site of the historic Honda Station is just north of the bridge. Nonnative trees have recently been removed from this site and it is used for UPRR staging of equipment and materials during routine maintenance operations. Northwest of the bridge are sandy soils that are heavily invaded by iceplant (*Carpobrotus spp.*).

The Fiber Optic Action Area lies along Coast Road and the UPRR line and begins at UPRR MP 299 and ends at MP 307. The railroad and Coast Road pass through a variety of habitat types including Acacia, iceplant, central dune scrub, and central coastal scrub. The shoulders of Coast Road and areas immediately adjacent to the UPRR line undergo routine vegetation mowing and clearance.

Commission staff ecologist Dr. Jonna Engel has reviewed the information included in the subject CC and determined that ESHAs identified within the project area include: open water, Arroyo willow (*Salix lasiolepis*), coastal bluff, coastal strand, foredune, and central coastal dune. Other non-ESHAs identified within the project area include developed/disturbed land, iceplant, and non-native trees.

Open Water

Seasonal open water currently flows via Honda Creek from two 10-foot diameter culvert pipes underneath Coast Road and out to the Pacific Ocean. Within Honda Creek there are seasonal lagoon and associated pools that change annually and may be un-vegetated or support mosquito fern (*Azolla filiculoides*) and occasional emergent species such as broad-leaved cattail (*Typha latifolia*). When open water habitats dry up during summer, the channel bottom is colonized by disturbance-tolerant wetland species such as annual beard grass (*Polypogon monspeliensis*), water beard grass (*Polypogon viridis*), giant horsetail (*Equisetum telmateia ssp. braunii*), water speedwell (*Veronica anagallis-aquatica*), water cress (*Nasturtium officinale*), seep monkeyflower (*Erythranthe guttata*), and fringed willowherb (*Epilobium ciliatum ssp. ciliatum*). The bank of Honda Creek is mostly bare.

Honda Creek also provides breeding habitat, forage and refuge for California red-legged frog. Habitat assessments and population status reports on California red-legged frogs, provided as part of consistency determinations (CD) previously reviewed by the Commission[2], found that Honda Creek supports a high number of adult frogs compared to many other areas of frog habitat on Vandenberg, such as San Antonio Terrace or ABRES-A Lake. Honda Creek also serves as a refugia and provides consistent breeding habitat for frogs during extended drought conditions.

Adverse impacts to open water for the proposed bridge replacement would result from construction of the causeway to allow cranes and other construction equipment to access the area under the bridge and from construction of the concrete pillars that will support the new bridge. Construction of the causeway would require approximately 17,000 cubic yards of fill to create a minimum 7-foot-deep work platform with six, 72-inch corrugated metal pipes to convey stormwater through the causeway. Although the causeway is described by UPRR as a temporary structure since it would be removed following completion of construction, the significant amount of fill that would be placed within an open water, riparian ESHA during construction would adversely impact the species within this habitat.

Placement of fill would completely cover any plant species within the footprint of the causeway for a period of eight months. The dirt would be compacted as a result of heavy-duty equipment passing back and forth across the site thereby smothering any plants under intense pressure and the cover of compacted dirt would block any light from reaching any plants which would prevent photosynthesis. Additionally, the causeway would disrupt the natural flow of Honda Creek while at the same time displacing any wildlife, including insects, amphibians, reptiles and fish, that would otherwise inhabit the area. As such, construction and use of the causeway within this habitat is considered a permanent impact.

A similar disturbance to the open water habitat occurred as a result of the emergency repair project. For that project, a smaller causeway was constructed using fill comprised of clean rock and covered an area of 0.04 acres. Emergency repair operations began on January 12, 2023, and were completed on March 4, 2023. A period of less than two months. Following completion of the emergency repairs, UPRR immediately began restoration of any areas impacted during construction.

In total, the proposed bridge replacement project and the emergency repair would result in the loss of 0.56 acres of open water habitat.

Arroyo willow

Arroyo willow thickets occur along Honda Creek from the Coast Road culverts to just upstream of Honda Bridge. Poison oak (*Toxicodendron diversilobum*), large leather root (*Hoita macrostachya*), and California blackberry (*Rubus ursinus*) dominate the understory. A suite of herbaceous wetland species occurs on the channel banks and floodplain, including annual beard grass, water beard grass, iris-leaved rush (*Juncus*

[2] CD-0010-22

xiphioides), low bulrush (*Isolepis cernua*), stinging nettle (*Urtica dioica ssp. holosericea*), and poison hemlock (*Conium maculatum*). More salt-tolerant species such as fleshy jaumea (*Jaumea carnosa*) begin to appear near the bridge as the water becomes brackish. Although this habitat type includes assemblages of wetland species, Commission staff ecologist Dr. Jonna Engel determined that the Arroyo Willow habitat within the project area is considered a riparian ESHA.

The arroyo willow thickets are located within the Honda Creek area at the base of Honda Canyon. Similar to the open water habitats, arroyo willow thickets would be permanently impacted by construction of the temporary causeway. In order to construct the causeway, vegetation within the area of the arroyo willow thickets would be trimmed and then covered by fill for a period of eight months. An area of arroyo willow thickets was also disturbed during the emergency repair project and was immediately restored following completion of the project. In total the bridge replacement project and emergency repairs would result in significant disturbance or loss to 0.18 acres of arroyo willow habitat.

Coastal Bluff

Coastal bluff habitat occurs on the west and east sides of the lower beach access road and is generally located on a relatively flat bluff along the edge of the coastline. An existing dirt road has historically transected this habitat and provided access from the upper terrace down to Honda Beach. The coastal bluff is dominated by Hottentot (*Crassula marnierana*) and sea figs (*Carpobrotus chilensis*) with patches of giant coreopsis (*Leptosyne gigantea*), coastal goldenbush (*Isocoma menziesii*), coastal sagebush (*Artemisia californica*), and seacliff buckwheat (*Eriogonum parvifolium*). Nuttall's milkvetch (*Astragalus nuttallii*), coast dudleya (*Dudleya caespitosa*), California orach (*Atriplex californica*), iceplant (*Carpobrotus edulis*), and New Zealand spinach (*Tetragonia tetragonioides*) are also present. Permanent impacts to coastal bluff habitat would result from grading to widen the beach access road to allow for crane access. The total area of coastal bluff habitat lost or degraded as a result of proposed road widening would be 0.30 acres.

Coastal Strand

Below the outlet of Honda Creek and the limit of most foredune vegetation is a broad and mostly unvegetated sandy beach that is often affected by wave action and high tides. Sparse foredune vegetation such as maritime sea-rocket (*Cakile maritima*) and beach saltbush (*Atriplex leucophylla*) may temporarily occur on the upper edges of this area during periods of low tide and wave action. Impacts to coastal strand would result from the proposed improvements to the beach access road and from installation of the temporary seawall. Although the seawall would only be used during construction and removed following completion of the project, the installation of the seawall and its continued presence during the two-year construction period means it would be considered a permanent impact. In total 0.22 acres of coastal strand would be lost as a result of widening the beach access road and installation of the temporary seawall.

Foredune

A small area of foredune occurs south of the Honda Creek mouth and includes beach bur-sage (*Ambrosia chamissonis*), beach saltbush, alkali heliotrope (*Heliotropium curassavicum*), iceplant, and maritime searocket. A total of 0.10 acres of foredune would be lost as a result of widening the beach access road and installation of the temporary seawall.

Summaries of the impacts to ESHA as a result of the project are summarized in Table 1 below:

Table 1 – ESHA Impacts

Habitat Type	Impact Area (Ac.)	Mitigation Ratio	Req'd Mitigation (Ac.)	Mitigation Area Available (In-kind) (Ac.)	HMA ESHA (out-of-kind) (Ac.)
Open Water	0.56	3:1	1.68	1.00	0.68
Arroyo Willow	0.18	3:1	0.54	0.30	0.24
Coastal Bluff	0.30	3:1	0.90	0.20	0.70
Coastal Strand	0.22	3:1	0.66	0.22	0.44
Foredune	0.10	3:1	0.30	0.30	0.00
Totals	**1.36**		**4.08**	**2.02**	**2.06**

Section 30240 Analysis
Section 30240 of the Coastal Act limits the types of uses allowed within designated ESHA to those that are dependent on ESHA to function. These include development such as habitat restoration or passive recreation, including trails. Unlike these two examples, the replacement of a railroad bridge does not depend on ESHA to function.

The disturbances and losses to ESHA summarized in the table above have been limited to the minimum necessary to complete the project and no less environmentally damaging feasible alternatives are available to further lessen sensitive habitat impacts. The Commission has generally considered bridge replacements "in kind" to represent the least environmentally damaging alternative, because other alternatives would usually involve greater disturbance. Alternatives considered for the proposed project consisted of: (1) replacement of the bridge in-kind, which would use existing pedestals and therefore would have a reduced permanent impact to ESHA, however, the structural integrity of the existing pedestal foundations could not be verified and this alternative was eliminated due to safety risks; (2) replace the existing bridge with a new bridge on an offline east or west alignment which would result in greater impacts to ESHA as a result of realigning the tracks and constructing new supports within ESHA; and (3) replace the existing bridge with a concrete cellular structure with arches which would result in greater impacts to ESHA.

The project also considered three alternatives for a long span bridge design across Honda Canyon with the intent of minimizing the number of bridge supports within ESHA. Two of the long span alternatives consisted of three-span designs, as opposed to the proposed six-span design, supported by four footings for support. Since both of these alternatives required larger footings than the proposed design, the overall area of supports within ESHA would actually be greater than the proposed project. Additionally, both designs would be more difficult to construct, would have resulted in similar permanent impacts to habitats within Honda Canyon as a result of construction, and would have created more significant delays to existing train services during bridge replacement.

The third long span alternative consisted of a steel truss composed of welded or bolted steel members spliced together to form a long single span with no footings. A single span of this magnitude would be extremely heavy and large. Additionally, it would require substantially larger abutments within the slopes of Honda Canyon to support the bridge. The additional grading and installation of the abutments within these slopes could result in significant adverse impacts to cultural resources located within the slopes of Honda Canyon and although this design would not require any footings within ESHA, the permanent impacts to ESHA as a result of construction would be the same as those of the proposed project.

Mitigation

In total, the proposed project would result in 1.36 acres of permanent impacts to ESHAs within Honda Canyon. UPRR's submittal includes a Habitat Restoration Plan, which would provide mitigation for impacts to ESHA at a ratio of 3:1 through a mixture of re-establishment and establishment. ESHA mitigation would include five different Habitat Management Areas (HMAs) of varying sizes and habitat types. The habitats within a particular HMA would correspond to the types of ESHA that would be adversely impacted by the project to the maximum extent possible. However, given the limited availability of disturbed in-kind habitat within Honda Canyon, and the significant distances to other available disturbed in-kind habitat within the area outside of the project, a portion of the mitigation requirements would be fulfilled by out-of-kind habitat restoration.

This out-of-kind habitat restoration would take place within central dune and central coastal scrub habitats located along the banks of Honda Canyon. A large portion of iceplant-covered central dune scrub on the north slope adjacent to Honda Bridge would be removed and then the area would be revegetated with native central coast dune scrub species. Also, since this location is historically mapped showing populations of beach layia (*Layia carnosa*) any topsoil salvaged pursuant to the avoidance, minimization and monitoring measures described below would be placed in this location to facilitate growth of beach layia. Within the central coastal scrub HMA invasive Sydney golden wattle (*Acacia longifolia*) would be removed followed by application of seeding with a mixture of central coastal scrub and dune bush lupine. Removal of Sydney

golden wattle would be accomplished by cutting down to the stump and treating the stump with a California-approved herbicide applied by a licensed professional.

The Habitat Restoration Plan (Plan) includes a work plan specifying salvaging and collection of plant materials including seeds, site preparation of each HMA, seed application, container stock planting, and irrigation plans. Following completion of restoration activities, each HMA would receive weed control on a monthly basis during the growing season (February 1st through November 30th) for the first year, followed by quarterly weeding over years two and three, and weeding during spring and summer in years four and five. The plan also includes vegetation monitoring over a period of five years with vegetation transects to collective data within each HMA plus annual reports with performance standards to provide an assessment of the conditions and health of each HMA. If the project is not meeting the performance standards, the plan requires UPRR to develop and submit an adaptive management strategy that would be developed and submitted to the Executive Director for review and approval.

Commission staff, including Dr. Jonna Engel, have worked closely with UPRR in the development of the Plan. However, there are several outstanding questions about the design and operation of the Plan which have not been addressed as of the date of this staff report. This information is necessary in order for Commission staff to analyze whether the proposed restoration would be successful. **Condition One**, in part, would require UPRR to revise the Plan to include the necessary information and to submit it for the review and approval of the Executive Director prior to commencement of construction.

Avoidance, Minimization and Monitoring Measures
UPRR has also incorporated the following avoidance, minimization, and monitoring measures to help ensure that adverse impacts would be minimized.

Birds
All construction will be avoided, to the greatest extent possible, during the southern California bird nesting season (February 15th through August 15th). If construction must occur during this time, no more than 14 days prior to commencement of construction activities, a qualified biologist will conduct a preconstruction survey for the presence of nesting birds. If an active nest of any Federal or State-listed threatened or endangered bird species, bird species of special concern, or any species of raptor is identified within 300 feet of construction activities (within 500 feet for raptors) during such preconstruction surveys, or is otherwise identified during construction, UPRR will notify all appropriate State and Federal agencies, including the Commission staff, within 24 hours, and will develop an appropriate action plan specific to each nest occurrence that will be consistent with any recommendations of those agencies. UPRR will notify the Executive Director in writing within 24 hours of identifying such a nest and consult with the Executive Director regarding the determinations of the State and Federal agencies. Measures to be considered would include, but not be limited to, modifying construction activities to avoid, minimize, and mitigate impacts to nesting birds, such as through implementing buffer zones around nests, installing sound blocking BMPs, limiting the

duration of construction activities, and/or re-locating construction-related machinery and activity.

If active nests (nests with eggs or chicks) of common species are located within 300 feet of construction activities, the qualified biologist will establish an appropriate avoidance buffer ranging from 50 to 300 feet based on the species' biology and the current and anticipated disturbance levels occurring in vicinity of the nest. The objective of the buffer will be to reduce nest disturbance for common bird species. All buffers will be marked using high visibility flagging or fencing, and, unless approved by the qualified biologist, no construction activities will be allowed within the buffers until the young have fledged from the nest or the nest fails. A qualified biologist will monitor all work within 300 feet of the nest. The biologist will immediately cease all project activity if the nesting birds show any signs of disturbance or distress.

Southwestern Pond Turtle

The southwestern pond turtle (*Actinemys marmorata pallida*) is a small to medium sized turtle that may be found in a variety of freshwater habitats including ponds, lakes, marshes, brackish lagoons, rivers, and streams with adequate pools. The species was historically present in many drainages of the Coast, Transverse, and Peninsular Ranges from southern San Francisco Bay to Baja California. Urbanization, wetland reclamation, channelization of waterways, mortality on roads, and increased rates of juvenile predation by nonnative animals have led to population declines and local extirpations.

The southwestern pond turtle has been recorded within Honda Creek approximately three miles upstream of the Honda Bridge. Southwestern pond turtle or its critical habitat has not been detected within the project area, but the southwestern pond turtle could occur within the project area, especially during years of high rainfall.

Although the southwestern pond turtle is currently not listed as threatened or endangered, the project includes measures to avoid or minimize any potential adverse impacts to southwestern pond turtle. Qualified biologists will be present onsite during all construction activities occurring in southwestern pond turtle habitat and prior to start of daily construction the biologists would survey the work area for any southwestern pond turtles. If turtles are identified within a work area and cannot be avoided, all work shall stop until the animal can be relocated or until it has left the work area.

California Red-legged Frog

The rarity of California red-legged frogs (CRLF) is widely recognized and has resulted in its designation as a threatened species under the federal Endangered Species Act and as a state species of special concern. CRLF are sensitive to disturbance and their habitat could be easily disturbed or degraded from development including direct habitat loss due to stream alteration, loss of aquatic habitat, and indirect effects of expanding urbanization affecting their dispersal and migration into new habitats. The species was previously documented between Honda bridge and the Coast Road culverts and also at five locations within Honda Creek, upstream of the project site. Surveys conducted as part of the proposed project identified California red-legged frog within the project area.

Prior to start of construction activities, exclusionary silt fencing would be installed to adequately exclude CRLF from the project area during active construction. These fences may be opened during periods of no-construction (e.g. on weekends) to prevent entrapment of CRLF. USFWS-approved biological monitor(s) would be present on site during all construction activities occurring in the riparian zone. Each day, prior to the start of construction activities in the riparian zone, biologist(s) would survey the work sites for CRLF and look under parked vehicles and heavy equipment frequently (especially before work starts in the morning).

Additionally, a USFWS-approved biologist (approved under the project's Biological Opinion) or one with valid 10(a)(1)(A) permits for the CRLF, shall be on-call to relocate any CRLF that happen to be within the project area. CRLF captured during surveys or construction activities will be relocated to the nearest suitable habitat outside of the project area.

Beach Layia

Beach Layia (Layia carnosa) is a small, low-growing annual plant species found in coastal sand dune habitat. It is a small annual herb with a maximum height of 18 centimeters. It has oval-shaped green leaves and in the center is a flower head with small white florets. Beach layia is found in only six locations throughout California including three locations within Humboldt County, one in Marin County, one in Monterey County, and one location in Santa Barbara County at VSFB. Beach layia is listed as endangered under both federal and state listings and has a ranking of G2, S2. Beach layia was originally listed as endangered in 1992 when it was determined that human-induced disturbances as well as other disturbances including invasive species, climate change, and agriculture were adversely impacting individual beach layia and resulting in ongoing negative population impacts. At the time USFWS found that the species was in danger of extinction throughout all of its range.

In March 2022, USFWS published a ruling to change the status of beach layia from endangered to threatened. In that ruling the USFWS found that the estimated population of beach layia is 30 million plants covering an area of 595 acres. However, the populations in the Central and South Coast Ecoregions, including VSFB, were found to be at the greatest risk of declines because of their small size, limited distribution, and expected continued threats in the future.

As described by UPRR in its CC, a qualified biologist would survey potential beach layia habitat within the project area and any identified beach layia would be fenced prior to any ground disturbance for the duration of the project. If beach layia is found within the project area and avoidance is not feasible, beach layia seed would be collected, and topsoil would be salvaged and replaced upon project completion. Seeding with other native plant taxa shall be kept to a minimum to ensure that beach layia seeds are not outcompeted, and nonnative weed control shall be implemented during the five-year restoration monitoring period.

Arguello Slender Salamander

The Arguello slender salamander (*Batrachoseps wakei*) was originally discovered in 2006. Since then, extensive surveys have only found it along the immediate coast from the vicinity of Point Arguello to Honda Canyon occupying a total range of approximately 320 acres. It occurs in central coastal scrub, iceplant, and rocky habitats atop marine terraces where it may be found beneath cover objects including rocks and natural and artificial debris that create a sufficient barrier to desiccation. Within the project area, the species is known to occur along the beach access road, near Point Pedernales, and along the UPRR ROW south of the project. Global and state rarity rankings have not been assigned, but the species could be ranked G1/S1 due to its extremely limited range.

Considering the rarity and sensitivity of the Arguello slender salamander population at VSFB, it is critically important that the project take precautionary measures to avoid adverse impacts to it. The project would include fencing around the perimeter of designated work areas to prevent personnel or equipment from encroaching into salamander habitat. Also, the project would include wildlife fencing around work areas to prevent salamanders from migrating into project work areas. Lastly, a qualified biologist would conduct preconstruction surveys for the Arguello slender salamander prior to any mowing or ground disturbance that would affect suitable habitat. If salamanders are identified, the biologist would capture and relocate individuals to appropriate habitat outside of the project area. Any containers used to capture and relocate individuals would be thoroughly cleaned to reduce the risk of disease transmission.

Bats

Three species of bat including the pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and Yuma myotis (*Myotis yumanensis)* may use Honda Bridge as a temporary night roost; however, the open deck structure does not offer suitable shelter from weather and is subjected to high levels of noise and disturbance from crossing trains. Two species including the hoary bat (*Lasiurus cinereus)* and the western red bat (*Lasiurus blossevillii)* potentially roost in riparian vegetation in Honda Creek. Vegetation disturbance may result in temporary loss of potential foraging and roosting habitat; however, due to the abundance of suitable riparian habitat upstream of Coast Road, this impact would be less than significant. Vegetation removal would occur outside the breeding season and would not impact maternity roosts. Bats may be disturbed during mowing and/or bridge removal, though direct physical harm to individuals is unlikely as bats flush readily due to noise or vibration.

The CC submittal did not include BMPs specific to bats and the Commission staff subsequently requested that UPRR conduct such a bat-specific survey, prior to construction. UPRR has agreed to perform such survey, and if bats are found, to consult further with the Commission staff and State and Federal resource agencies on any measures warranted to protect bats.

ESHA Conclusion

The Commission agrees with UPRR that the project has been designed in a manner rendering it the least environmentally damaging feasible alternative. With the above measures, the Commission finds that the project would in the long-term be compatible with the continuance of ESHA. Nevertheless, the project remains inconsistent with Section 30240, because it is not a "use dependent on" ESHA. Therefore, the only way the Commission could concur with this consistency certification would be if it finds the project consistent with the enforceable policies of the Coastal Act, including section 30240, through the "conflict resolution" provision contained in Section 30007.5.

As discussed in Sections E and G of this report, not allowing the project to proceed would be inconsistent with the water quality, public access and recreation, and air quality/energy consumption policies of the Coastal Act, because it would prevent benefits from accruing to coastal resources that are inherent in the project and mandated by the policies of the Coastal Act. Those benefits include the maximization of existing and future public coastal access, the facilitation of public transit and the minimization of vehicle miles traveled, the improvement of air and water quality by reducing traffic congestion, and the avoidance of adverse water quality impacts if the bridge were to degrade to the point where parts or all of it were to fall into Honda Creek (or into the surrounding sensitive riparian habitat). Thus, the project creates a conflict between the allowable use test of the ESHA policy of the Coastal Act (Section 30240) on the one hand, and the water quality, public access, and energy conservation policies of the Coastal Act (Sections 30210, 30213, 30231, 30232, 30252, and 30253) on the other. In the concluding section of this report (Section I), further analysis is provided concerning the resolution of these conflicts.

D. Wetlands

Section 30233 of the Coastal Act states:

> (a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:
>
> …
>
> (4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

The project would result in permanent adverse impacts to 0.70 acres of coastal brackish salt marsh due to the causeway and construction of piers for the replacement bridge. The project would not result in any temporary impacts to coastal brackish salt marsh.

Allowable Use

Because of its effects on wetlands, the proposed project is subject to the requirements (i.e.; three part test) of Coastal Act Section 30233(a). The first requirement is that the proposed activity must fit into one of the seven listed categories (i.e.; in the "allowable use" test).

The section of railroad at the proposed project site is used for passenger and freight transit along California's central coast between San Diego and San Luis Obispo (Amtrak's Pacific Surfliner) and between Seattle, Washington and Los Angeles (Amtrak's Coast Starlight). A total of six passenger trains carrying more than 2,000 passengers pass over the bridge each day. Passenger and freight movement along this corridor is a critical public access amenity because it provides public transportation to multiple coastal cities within Central and Southern California. In past decisions, the Commission has considered replacement of railroad lines to qualify as "incidental public service purposes," and thus allowable within wetlands under Section 30233(a)(4), where no other feasible less damaging alternative exists and the work is necessary to maintain existing capacity (e.g, CC-006-11, NCTD Railroad Bridge Abutment action; CC-055-05, NCTD, Railroad Bridge Replacement over Agua Hedionda Lagoon; CC-058-02, City of Santa Barbara, modifications to the Santa Barbara Airport; CC-052-05, NCTD, Bridge Replacement and Second Track, Santa Margarita River; and CC-086-03, NCTD, Second Track, San Onofre Area, Camp Pendleton.). Here, the proposed bridge replacement is necessary to maintain public service of the LOSSAN rail corridor and will not expand railway capacity. Rather, it will help safely maintain the railway in its existing configuration. As such, the wetland fill is allowable use under Section 30233.

Alternatives

For the second test of Section 30233(a), the Commission must find that there are no feasible, less environmentally damaging alternatives to the proposed fill and dredging of wetlands.

In designing the proposed bridge replacement project, UPRR considered six alternatives to the proposed project. These include: replace bridge in-kind using existing footings in one continuous phase-out; offline replacement which would move the bridge either east or west of the existing alignment; cellular fill full replacement with Con-Span openings; various free span designs; and a concrete bridge full replacement structure (proposed project).

For the first option, UPRR determined that replacing the bridge using existing footings was infeasible because the foundations could not be verified as sufficiently safe to meet current seismic and climate change resiliency conditions. For the second alternative (offline replacement), a parallel alignment to relocate the bridge outside of the wetlands would require extensive relocation of the track north and south of Honda Canyon, which would result in approximately 3-6 acres of additional upland impacts as well as cultural resource impacts on the north and south sides of the bridge. The third alternative (cellular fill) would have resulted in an additional 0.4 acres of permanent fill in wetlands in comparison to the proposed replacement as well as cultural resource impacts on the north and south portions of the bridge. Although the free span alternatives would result

in all components of the final bridge structure being outside of wetlands, construction of free span bridges, including the causeway and crane pads, would have resulted in the same acreage of permanent impacts to wetlands as the proposed design. In addition, the free span designs would have resulted in greater impacts to cultural resources.

Therefore, the Commission finds that the proposed project is the least environmentally damaging feasible alternative, as required by Section 30233(a).

Mitigation
The third test of Section 30233(a) requires that feasible mitigation measures be provided to minimize the project's adverse environmental effects.

To minimize adverse impacts to wetlands, the project would include avoidance and minimization measures. Prior to the start of construction activities, a qualified biologist would determine the limits of exclusionary fencing and oversee installation of the fencing to prevent equipment and personnel from entering sensitive areas outside of the project area. Equipment and vehicles would also be inspected and cleaned prior to arriving onsite in order to prevent the possible introduction of non-native, invasive plant species from outside the project area into wetland habitats. A qualified biologist would be present during all project activities to monitor and document compliance with the avoidance and minimization measures.

As described above, UPRR anticipates that approximately 0.70 acres of permanent adverse impacts to wetlands would result from the proposed project. Specifically, permanent adverse impacts would result from the causeway needed for construction equipment to access the area under the existing bridge and also from construction of concrete support pillars (**Exhibit 5**). As mitigation for these permanent adverse impacts, the project includes a habitat restoration plan which has been reviewed and approved by the Commission's staff ecologist as adequate to fully offset anticipated adverse impacts to wetlands by restoring in-kind wetland habitat within Honda Creek at a ratio of 4:1 plus out-of-kind habitat restoration at a ratio of 4:1. As discussed in Section E above, this out-of-kind habitat restoration is necessary due to the limited availability of disturbed in-kind habitat within Honda Canyon Proposed restoration would include re-establishment of habitat impacted by the project and the emergency project, restoration of out-of-kind habitat within the slopes of Honda Canyon, removal of existing bridge pedestals, and creation/expansion of wetland habitat along the southern boundary of the bridge construction zone. Native cuttings and seeds would be salvaged from the area of the proposed causeway and pillars prior to the commencement of project activities and would be supplemented with seed and container stock obtained from vendors within coastal Santa Barbara County.

As committed to in the project's habitat restoration plan, restoration efforts would be monitored by the project biologist for a period of five years and ongoing maintenance activities would include weed control efforts as well as tracking irrigation requirements and climate trends. Annual reports would be provided at the end of each monitoring period and would include an assessment of restoration conditions and a determination

as to whether the restoration is meeting performance standards. If the project is not meeting performance standards, UPRR would notify the Executive Director (ED). Implementation of any adaptive management strategy would require approval of the ED.

Therefore, as conditioned, the Commission finds that the project is consistent with the wetland protection provisions of Section 30233 of the Coastal Act.

E. Water Quality

Section 30231 of the Coastal Act states:

> The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Section 30232 of the Coastal Act states:

> Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.

Proposed project activities, including mobilization, staging and construction, have the potential to negatively impact water quality and the marine environment through sedimentation and turbidity, as well as the accidental spill or release of crude oil, gas, petroleum products, or other hazardous substances within the site. UPRR included in its consistency certification commitments for water quality protection during construction of the proposed project, including preparation of a Storm Water Pollution Prevention Plan (SWPPP), compliance with its National Pollutant Discharge Elimination System permit, and implementation of construction best management practices:

> Construction contractor(s) shall follow National Pollutant Discharge Elimination System (NPDES) Construction General Permit requirements including preparation and implementation of a SWPPP. The SWPPP shall include BMPs for erosion and sediment control, non-stormwater management, spill prevention and control, vehicle and equipment fueling and maintenance, solid waste management, concrete waste management, stockpile management and septic waste management.
>
> Construction contractor(s) shall adhere to accepted BMP manuals, such as the California Stormwater Quality Association BMP Manual. Erosion and sediment

> control BMPs for temporary and permanent protection shall be implemented to protect Honda Creek during work near the channel including, but not limited to, silt fence, biodegradable straw wattles or erosion control fabrics, and hydroseed. No monofilament netting shall be used. Temporary erosion and sediment control materials shall be removed upon project completion and disturbed soil areas shall be stabilized to prevent erosion and meet Construction General Permit Notice of Termination and the Restoration Plan. Stormwater discharge from qualified storm events shall require water quality monitoring and reporting per the Construction General Permit. This includes visual monitoring and sampling and analysis for pH and turbidity.

Regarding hazardous materials, the consistency certification states that:

> The contractor shall prepare and implement an approved spill prevention and response plan, including procedures to ensure that all equipment is properly maintained and free of leaks, and all necessary repairs incorporate proper spill containment.
>
> …
>
> Mobile equipment shall be staged, repaired, and maintained at least 500 feet outside the Honda Creek riparian corridor. Large equipment such as cranes shall be staged adjacent to the bridge, outside of the active channel. Fueling of equipment shall be conducted in pre-designated areas, outside of the active channel. Spill containment materials shall be placed around equipment before refueling. Personnel shall place protective mats of sufficient size, material, and design to prevent contamination of Honda Creek. Operators shall place standing equipment (e.g., cranes) on these mats and use drip pans and hydrocarbon absorbent pads to minimize environmental impacts.
>
> If it is necessary to refuel or repair equipment within the riparian corridor, spill containment materials shall be placed beneath and around the equipment and a qualified biologist shall be present to document protection of water quality and biological resources.
>
> Hazardous materials shall be properly stored and managed in secured areas located outside of the Honda Creek riparian corridor.
>
> Refueling trucks and other fuel or oil containers greater than 55-gallons that would remain onsite shall have secondary containment.

With implementation of the above-referenced water quality protection measures, the Commission finds that the proposed project would not cause significant adverse water quality impacts at and adjacent to the project area. Therefore, the Commission finds that the project is consistent with the water quality and spill prevention policies of the Coastal Act (Sections 30231 and 30232).

F. Coastal Hazards

Section 30235 of the Coastal Act states:

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

Section 30253 of the Coastal Act states:

> New development shall do all of the following:
>
> a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.
>
> b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs…

Coastal Act Section 30253 requires new development to minimize risks to life and property in hazardous areas while Section 30235 allows the construction of shoreline protective devices when they are required to protect existing structures[3].

The proposed project includes replacing the existing 541-foot-long Honda Bridge and steel supportive towers with a new 541-foot-long bridge situated atop concrete piers. The project also includes improvements to access roads, multiple staging areas, and construction of a temporary causeway in the area underneath the bridge. The project proposes a temporary sheet pile seawall that would extend from the lower access road to protect the construction causeway from wave action and fluctuating tides. The project does not propose any shoreline armoring.

Because the project involves replacement of an aging railroad bridge with a new railroad bridge, it is considered critical infrastructure and must therefore be evaluated for consistency with relevant sea level rise policies and those sections of the Coastal Act

[3] California Senate Bill 1 which amended the Coastal Act to include Section 30270, was passed by the Legislature and approved by the Governor on September 23, 2021. However, the certified California Coastal Management Program (CCMP), which governs Commission review and approval of federal activities, development projects, permits and licenses, and support to state and local governments, has not yet been amended to incorporate Section 30270.

that require consideration of alternatives and the analysis, minimization and mitigation of adverse impacts, while also assuring stability and structural integrity.

Sea Level Rise

The State of California has undertaken significant research to understand the possible range of sea level rise amounts to expect over this century based on future emission scenarios and to anticipate the likely impacts of such sea level rise. In April 2017, a working group of the Ocean Protection Council's (OPC) Science Advisory Team released "Rising Seas in California: An Update on Sea-Level Rise Science." This report synthesized research on sea level rise science at the time, notably including probabilistic sea level rise projections, as well as the potential for rapid ice loss to lead to extreme sea level rise. This science synthesis was integrated into the OPC's State of California Sea-Level Rise Guidance 2018 Update (Guidance). This OPC Guidance document provides high-level, statewide recommendations for state agencies and other stakeholders to follow when analyzing potential sea level rise vulnerabilities for various projects. Taken together, the 2017 Rising Seas science report and the updated 2018 OPC Guidance represent the current best available science on sea level rise for the State of California, and these projections accordingly have been incorporated into the Coastal Commission's Sea Level Rise Policy Guidance 2018 Science Update.

The appropriate time horizon to use to evaluate sea level rise depends on the expected useful life of development, the point after which the development is expected to be removed, replaced, or redeveloped. The Commission's 2021 Sea Level Rise Policy Guidance for Critical Infrastructure (Critical Infrastructure Guidance)[4] identifies railroad infrastructure, such as the proposed bridge replacement, as "critical" infrastructure given its long design life, generally low adaptive capacity, and the high consequences associated with its failure. In such cases, the 2018 OPC Guidance and 2021 Coastal Commission Critical Infrastructure Guidance recommend that applicants understand the risks associated with the medium-high risk aversion scenario and extreme (H++) risk aversion scenario and anticipate the need to plan for those scenarios over the expected life of the structure. For critical infrastructure like this bridge, the expected life is typically considered to be 100 years.

The 2018 OPC Guidance provides sea level rise projections for twelve California tide gauges and recommends using the projections from the tide gauge closest to the project site. In this case, the Santa Barbara Tide Gauge is the closest to the proposed project. The following table depicts projected sea level rise at the Santa Barbara Tide Gauge under low-risk, medium-high risk, and extreme-risk aversion scenarios over the 100-year project life, as recommended by the Commission's 2021 Critical Infrastructure Guidance. The probabilities assigned to each scenario are for the likelihood that a given Sea Level Rise amount would be met or exceeded.

Projected Sea Level Rise (in feet)

[4]https://documents.coastal.ca.gov/assets/slr/SLRpercent20Guidance_Criticalpercent20Infrastructure_12.6.2021.pdf

Year	Low-Risk Aversion (~17percent probability)	Medium-High Risk Aversion (~0.5percent probability)	Extreme Risk Aversion (no associated probability)
2120	3.7 feet	8.2 feet	13.7 feet

Future SLR is expected to exacerbate problems of coastal hazards and will threaten future operations of the development included in this CC. Over time, SLR will tend to (i) shrink the distance between breaking waves and the development, (ii) increase water depths and reduce wave attenuation in the nearshore (with the net effects of increasing the frequency and force of wave attack) and (iii) increase the severity and duration of flooding. Although the rate of future sea level rise is uncertain, the potential for large amounts of sea level rise in future decades must be factored into assessments of development risk and adaptation strategies.

Project SLR Analysis

The Coastal Commission's Critical Infrastructure Guidance calls for considering and planning for a 100-year horizon and anticipated SLR projections. The importance of the railway and the bridge replacement is described in the CC as follows:

> The purpose of the Proposed Project is compliance with Federal Railroad Administration (FRA) and UPRR safety standards and maintenance of passenger and freight transit along the only railroad line on California's central coast. The Proposed Action is needed to ensure that Honda Bridge complies with FRA and UPRR safety standards. The bridge is essential to the only railroad route through Ventura, Santa Barbara, and San Luis Obispo counties. The steel supports of the current bridge, built in 1898, have deteriorated, and replacement is necessary. The Proposed Action would support continued freight and passenger train travel between San Diego and San Luis Obispo, California (Amtrak's Pacific Surfliner) and between Seattle, Washington, and Los Angeles, California (Coast Starlight). Between the Pacific Surfliner and the Coast Starlight, Amtrak runs six passenger trains per day across the Honda Bridge. The Pacific Surfliner travels between San Luis Obispo and San Diego (2 daily roundtrips, 4 crossings) and the Coast Starlight travels between the Pacific Northwest (Seattle/Portland) and Los Angeles (2 daily crossings). These trains carry more than 2,000 passengers per day, which is equivalent to approximately 1,000 passenger vehicles (at two persons per vehicle). Long-haul freight loads and local freight haulers each use the rail twice per week. Each freight train transports the equivalent of approximately 250 commercial truck trips (Javier Sanchez, pers. comm. 2019). If the bridge were allowed to continue to deteriorate, train service would become unsafe, diverting rail travel to the inland portions of California's Central Valley, resulting in significant delays, and potentially removing passenger and freight service from central coast cities.

Development such as the railroad and bridge constitute important and necessary investments in critical public infrastructure. The proposed development would improve

the safety of railroad operations along the coast of Southern California and a safe and reliable railway is critical to meeting numerous Coastal Act objectives, including access and recreation. A wave uprush report prepared by UPRR and included in its CC analyzed potential adverse effects by focusing on wave uprush as well as potential erosion at the base of the concrete support pillars and erosion of the cliffs on either side of Honda Canyon that would support the bridge abutments.

UPRR has confirmed that the project was designed and developed with a 100-year design life. As such, the coastal hazards report prepared by UPRR considers the combined effect of sea level rise and coastal hazards on the bridge beginning in 2025 and continuing until 2125. However, the coastal hazards report recognizes that considering the uncertainty of the rate of future sea level rise, estimates and calculations of potential impacts beyond 50 years become increasingly difficult and may not be entirely accurate.

As described in the hazard analysis report provided by UPRR, the wave runup analysis indicated that the project is currently within the coastal flood plain with the rate of flooding increasing into the future. Due to the elevation of the bridge deck, any inundation from wave uprush would be limited to the bridge substructure. Analysis of projected shoreline erosion determined that the maximum projected shoreline recession could be as much as 900 feet inland using worst case assumptions. Shoreline erosion could in fact be greater than 900 feet, but at that distance any additional erosion is halted because it would run up against the cliff located at the eastern end of Honda Canyon. Regarding erosion of the coastal bluffs located seaward of the bridge, the report considered a range of potential rates of coast bluff retreat in response to projected SLR, including what UPRR considered to be the average rate of retreat and the maximum possible rate of bluff retreat. The report determined that, under the maximum rate of erosion using near worst-case assumptions, the project site is potentially vulnerable to bluff erosion near the end of the project's expected service life, meaning the abutments that support both the north and south sides of the bridge could be susceptible to erosion. Lastly, UPRR evaluated potential scour and load to the bridge piers from a tsunami event and determined that the bridge would be safe from tsunamis.

Commission staff geologist Dr. Joseph Street and staff engineer Jeremy Smith reviewed the hazard analysis report in coordination with UPRR and collectively determined that the average rate of bluff retreat was likely the most plausible. Under the average bluff retreat rate the bridge abutments would not be threatened by seaward retreat of the bluff. Additionally, they concluded that the extent of waves into the canyon and shoreline erosion that considered worst-case assumptions as described in the report is unlikely to occur. Although these two factors appeared to not represent a significant threat to the bridge, Commission staff were concerned that erosion from wave uprush within Honda Canyon, specifically the slopes supporting the bridge abutments, could adversely impact the stability of the bridge. UPRR responded that the location of natural landforms in the area of the bridge and the oblique angle of wave propagation into the canyon reduce wave energy entering Honda Canyon. As such, UPRR concluded that the risk of bluff or slope erosion within the canyon is very small and the corresponding

threat to the bridge abutments is also very small. UPRR acknowledged the uncertainty of future sea level rise and the limitations of the modeling of erosion within Honda Canyon and committed to regularly monitor the stability of the bridge.

Rip Rap Within Honda Creek

On January 9, 2023, Santa Barbara County received more than 12 inches of rain in a 24-hour period because of an atmospheric river storm event that flooded large portions of the region. This storm resulted in a significant volume of stormwater flowing into Honda Canyon. As discussed previously, the Commission previously approved a culvert repair project (ND-0002-21) for the Air Force to repair two existing culverts located upstream of the proposed bridge replacement project, where Honda Creek passes underneath Coast Road **(Exhibit 6)**. Each culvert was 13 feet in diameter and 330-feet-long, consisting of corrugated metal pipe that had corroded and become clogged with silt. The Air Force project included: installation of 10-foot-diameter high-density polyurethane liners inside each of the existing culverts. These smaller diameter culverts have accelerated the peak velocity of water flowing through Honda Creek from 8.75 cubic feet per second to 15.57 cubic feet per second.

The outlets of these existing culverts have historically released in the direction of the northern embankment and have not previously resulted in erosion. However, as a result of the increased peak velocity stormwater flows from the smaller culvert diameters the January 9th storm significantly eroded the area of the north slope which exposed and compromised the footings of Bents 3, 4, and 5 of the existing railroad bridge and threatened the structural integrity of bridge as well as the existing train tracks located north of the bridge. Immediate repairs were necessary to stabilize and protect the compromised bridge infrastructure.

Emergency permit G-9-23-0009 included: removal of eroded material from within the floodplain, creation of a temporary causeway across Honda Creek for equipment and personnel to access the slope failure area, placement and compaction of fill material in the area of the eroded toe slope along the north bank of Honda Creek, and placement of permeable rock within Honda Creek for stormwater protection. In total, the emergency project required 3,349 cubic yards of schedule D50 3-foot-diameter rip rap along the north bank. As part of the proposed project UPRR is requesting permanent authorization of the emergency repairs including the slope repair and rip rap.

Coastal Act Section 30235 allows for construction that alters natural shoreline processes when required to protect existing structures. The slope repair and rip rap are necessary to protect the existing rail line. In the CC application, UPRR provided an analysis of multiple alternatives, including moving the bridge and tracks to another location in a new alignment. Although realignment could help to minimize the risk to the rail line from the high velocity flows within Honda Creek, doing so would require extensive relocation of the track north and south of Honda Canyon, which would result in approximately 3-6 acres of additional upland impacts as well as cultural resource impacts on the north and south sides of the bridge. As such, maintaining the slope

repair and rip rap is the only feasible alternative for protecting the rail tracks in their current location.

Section 30235 also requires that construction that alters natural shorelines be designed to mitigate adverse impacts to local shoreline sand supply. Rip rap within creek environments can disrupt the flow of water and sediments which would otherwise continue through the creek and out to the Pacific Ocean, which provides sediment for nourishing beaches. Following completion of the emergency repairs, UPRR analyzed the reconstructed slope and determined that an excess of rip rap had been placed along the toe during the emergency and that 790 cubic yards could be removed while still providing sufficient protection. Removal of this additional rip rap would lessen the impact of the rip rap and allow a greater amount of sediment to migrate out of Honda Creek and onto adjacent beaches.

Lastly, Section 30253 also requires that new development not rely upon construction of protective devices in the future. As discussed in the Design and Adaptation Section below, In its CC UPRR has acknowledged and agreed to assume the risks of constructing the rail infrastructure in an area vulnerable to coastal hazards and has acknowledged and agreed that the development is not entitled to shoreline protection under Section 30235 of the Coastal Act. Further, UPRR has waived any rights to shoreline protection that may exist under applicable law.

Geology
In addition to its hazard analysis report, UPRR also provided a geotechnical design report that analyzed the stability of the bridge with respect to geologic subsurface conditions. The findings of that report are summarized as follows:

> Like most of Southern California, the Project site is considered to be seismically active. Our review of California Earthquake Hazards Zone Application (EQ Zapp) available online by California Geological Survey (CGS, 2021) and the USGS Quaternary Fault and Fold Database of the United States (USGS, 2021), indicates that the site is not underlain by known active or potentially active faults, nor does the site lie within an Alquist-Priolo Earthquake Fault Zone.
>
> …
>
> The project alignment is not traversed by any known active or potentially active faults. Therefore, the potential for fault rupture within the project alignment is considered low.
>
> …
>
> The site is located in an area that has not been evaluated as part of the California Seismic Hazard Program (CGS, 2021) for liquefaction potential. The Santa Barbara County Hazard Mitigation Plan (2017) identifies areas near the

site as “low severity liquefaction.” However, the loose saturated alluvial soils within the creek are typical of soils that are potentially liquefiable.

Liquefaction analyses were performed using the software CLiq (GeoLogismiki, 2006) with the CPT data that extended to refusal at an approximate depth of 40 feet below ground surface. The analyses were performed for each AREMA seismic event listed in Table 3-4 using a moment magnitude (Mw) of 6.5 and the groundwater level at the ground surface (within the creek). Estimated liquefaction settlements ranged from approximately 1.5 to 5 inches for various seismic events. Note that these liquefaction settlements are pertinent to CPT locations within the creek. Areas at the top of the slopes (abutments) are considered non-liquefiable.

Based on this information and analysis carried out by the Commission’s staff geologist, the bridge would not be vulnerable to geologic hazards and construction of the bridge would be technically feasible from a geotechnical standpoint.

Design and Adaptation
The proposed bridge design would consist of a 541-foot-long DPG and two new concrete abutments situated atop concrete caps reinforced with retaining walls. The DPG would be supported by five concrete cast piers spaced 90 feet apart. Each column would be constructed atop cast-in-place concrete pile caps and would be anchored belowground by steel piles.

In response to the potential adverse impacts of coastal hazards on the bridge UPRR would implement the following adaptation measures:

- Increase pile diameters and embedment length to accommodate increased wave loading through the anticipated service life. The depth of the piles would vary between 15 to 60 feet. The proposed deeper piles would also mitigate the anticipated effects of scour.
- Incorporate corrosion resistance into foundations. Add additional concrete cover over reinforcing steel and incorporate microsilica additives into the concrete to inhibit chlorides from entering the concrete matrix.
- To reduce corrosion, sacrificial steel casings would be added to pier foundations most likely to encounter brackish water.
- Regularly monitor the northern and southern cliffs within Honda Canyon for signs of erosion.
- Regularly monitor the status and stability of the completed bridge.

Although the bridge design and adaptation measures proposed by the UPRR would help to protect the proposed development from current and near-term coastal hazards within the next 50 years, UPRR’s hazards report identifies that there is uncertainty regarding the future of sea level rise and there are inherent limitations in the modeling of erosion within Honda Canyon, particularly beyond 50 years. As such, the project has not been able to definitively demonstrate that it would be completely protected from

coastal hazards over a 100-year design life consistent with the Commissions SLR guidance for critical infrastructure.

Considering the significant amount of time that is required to successfully plan for and adapt critical infrastructure to SLR, the Commission finds that a 40-year authorization period for this project is appropriate. This authorization term ensures safety through 2063 under the worst-case-scenario SLR projections and provides an opportunity to reassess and plan for future coastal hazard risks. UPRR has included in its CC a request that the proposed development be authorized on a temporary basis for forty years and commits that prior to the expiration of the authorization period, UPRR would submit a new CC to the Commission to either: (a) extend the length of time of the authorized development and modify its design, as needed, to ensure consistency with the Coastal Act, or (b) relocate or remove all portions of the project and restore the affected areas to pre-development conditions.

In its CC, UPRR also commits to develop a Coastal Hazard Adaptation and Implementation Plan (CHAIP) to be included with the new CC that would identify a suite of strategies necessary for protecting, relocating, or otherwise adapting the bridge. These strategies would also consider the need to maintain safety from coastal hazards in order to minimize risk and assure stability and structural integrity and to ensure protection of coastal resources over the long-term. Required components of the CHAIP would include: an analysis of then-current and future hazards related to sea level rise based on best available science; an alternatives analysis that evaluates a variety of adaptation options, including accommodation, protection, and retreat/relocation strategies that specifically prioritize approaches that can limit the need for shoreline armoring; a description of any additional proposed development at the site as well as a description of how such development would fit into the overall long-term adaptation approach, including with respect to the costs and benefits of those upgrades and any necessary protection measures in comparison to relocation; and a timetable for implementation of the strategies identified in the CHAIP.

Further, in its CC UPRR has acknowledged and agreed to assume the risks of constructing the bridge in an area vulnerable to coastal hazards and has acknowledged and agreed that the development is not entitled to shoreline protection under Section 30235 of the Coastal Act. Further, UPRR has waived any rights to shoreline protection that may exist under applicable law. This ensures that UPRR bears the risks of developing in a vulnerable area when it is not entitled to shoreline protection and when the Commission may not authorize shoreline armoring to protect the development in the future. However, this would not preclude the Commission from approving shoreline protection in the future if allowed under the Coastal Act, particularly where such protection is designed as part of a broader approach (as developed through the CHAIP) that can be shown to appropriately protect coastal resources over time throughout the project area.

Taken together, these commitments would allow for the currently proposed project to proceed consistent with the Coastal Act while also building in time to allow for

development of a long-term adaptation approach that will help ensure that the proposed development can continue to minimize hazard risks, assure stability and structural integrity, and protect coastal resources.

Therefore, the Commission finds that the proposed project, as conditioned, is consistent with Sections 30235 and 30253 of the Coastal Act.

G. Public Access, Recreation, and Transit

Section 30210 of the Coastal Act states:

> In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Section 30213 of the Coastal Act states:

> Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred.

Section 30252 of the Coastal Act states:

> The location and amount of new development should maintain and enhance public access to the coast by (1) facilitating the provision or extension of transit service…

Section 30253 of the Coastal Act states:

> New development shall do all of the following:…
>
> (d) Minimize energy consumption and vehicle miles traveled.

The proposed project site in northern Santa Barbara County is within VSFB and is not accessible to the public, other than the use of the UPRR rail corridor for the AMTRAK public rail service. Operation of the rail corridor would for the most part be unaffected by project activities, except for a two-week period where rail operations within the corridor would be paused while the existing DPG superstructure is be removed and replaced with the new DPG superstructure atop the newly constructed columns. The project would thus result in no significant adverse effects on public coastal access and recreation. Conversely, a failure to replace the Honda Creek Bridge would adversely affect public coastal access and recreation, both directly and indirectly. Direct impacts would include elimination of a popular public rail line service that provides unique coastal views and a number of direct coastal stops throughout southern California that

may be considered a lower cost visitor facility for those who cannot afford a car to visit the section of the coast covered by the rail line. Indirect impacts would be due to the fact that public use of that rail service reduces the number of private cars on the region's highways. The Honda Bridge serves two popular, coastal-access-related, Amtrak routes: the Pacific Surfliner and Coast Starlight rail lines, which provide spectacular and unique coastal views, as well as a number of direct stops at coastal destinations, including Surf Beach (on VSFB), Oceano, Grover Beach, Santa Barbara, Carpinteria, Ventura, San Clemente, Oceanside, and Solana Beach.

The indirect benefits of reducing automobile and truck traffic (as well as longer rail trips) would also benefit air quality and energy consumption, as well as reduce greenhouse gas emissions that contribute to sea level rise and exacerbate coastal erosion. The Commission therefore finds the project consistent with the public access, transit, and energy minimization policies of the Coastal Act. In the Substantive File Documents appendix to this report the staff has listed a large number of rail transit improvements for which the Commission has adopted similar findings about the benefits to coastal resources from authorizing rail construction activities (primarily, San Diego Association of Governments (SANDAG) bridge replacements and "double-track" projects in northern San Diego County). Those San Diego County rail lines, like UPRR's line, transport both public and commercial freight users.

Therefore, the Commission finds that the project is consistent with the public coastal access, recreation and transit policies of the Coastal Act (Sections 30210, 30213, 30252, and 30253).

H. Cultural Resources

Section 30244 of the Coastal Act states:

> Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

Coastal Act Section 30244 states that reasonable mitigation measures shall be required where development would adversely impact identified archaeological resources. These resources may be sacred lands, traditional cultural places and resources, and archaeological sites.

UPRR commissioned a cultural resources survey of the project site to analyze the cultural sensitivity of the project area. That analysis concluded that known cultural resources are present and could be affected by the project. As such, mitigation measures to address these impacts have been developed in consultation with culturally affiliated tribal representatives and incorporated into the project proposal.

Honda Bridge is located among numerous sensitive archaeological sites dating as far back 9,000 years before present and are associated with some of the earliest known

human habitation along the Santa Barbara County coast. Background research revealed 14 previously known sites that had been recorded as part of cultural surveys for other projects in the area. For the proposed project, UPRR completed testing to evaluate the eligibility of three of the previously known sites for eligibility with the National Register of Historic Places (NHRP) and, after testing, recommended that one of the sites be found eligible. In addition to the background research and eligibility analysis, the project also included subsurface surveys of previously untested areas and found three new, previously unrecorded resources. Where proposed project activities involve ground disturbance at sites with archaeological resources determined to be, or recommended to be, eligible for the NHRP, UPRR performed an effects analysis to determine if ground disturbing activities associated with the project would have the potential to adversely affect those resources.

UPRR coordinated with the State Historic Preservation Officer (SHPO) and also consulted with the Santa Ynez Band of Chumash Indians regarding the appropriate measures necessary to protect these cultural resources. For all but one of the eligible archaeological sites, adverse effects would be avoided by application of a total of seven resource-specific Historic Properties Protection Measures (HPPMs) and through complete avoidances of the resources themselves. HPPMs for the project would include: (1) prohibiting grading within the Beach Access Road, placing a layer of geo-textile fabric followed by clean road base cap, and erecting exclusionary fencing to prevent vehicles from driving into sensitive areas at this location; (2) abandoning an existing access road and planting native species to return the area to a natural state, thus discouraging equipment and personnel from entering this area; (3) limiting development of the South Abutment Access Routes and South Abutment Temporary Crane Pad to areas that were previously disturbed or areas that do not include deposits of sensitive cultural resources; (4) installing exclusionary fencing or rigid barriers along the base of the North Abutment Accessway to prevent equipment and personnel from adversely impacting sensitive areas at this location; (5) restricting access to habitat mitigation areas to foot traffic only and limiting restoration activities to low impact, manual methods; (6) constructing a block retaining wall along the western side of the Lower Beach Access Road to protect a portion of the site containing sensitive cultural resources; and (7) placing geo-textile fabric, applying clean road base atop the Pier 2 Access Road and prohibiting ground disturbing activities within the road.

At the other site, the proposed HPPMs would reduce, but not entirely avoid adverse effects to cultural resources. Project activities near this site include the construction of access roads and crane pads. UPRR determined that additional mitigation is recommended for this site, and a Historic Properties Treatment Plan (HPTP) and Memorandum of Agreement (MOA) would be necessary. The HPTP would specify the processes and parameters to allow for controlled excavations and investigations of sensitive cultural resources within this site in coordination with active project construction. The investigations would include cultural resource identification efforts and data recovery. The MOA would formally memorialize these processes and parameters, as well as agreements for confidentiality, dispute resolution, and personnel

qualifications. The final MOU would be signed by the Air Force and the SHPO, and the Santa Ynez Band of Chumas Indians would be invited to concur with the final MOA.

In addition to resource-specific HPPMs, Project-wide measures would also be included as agreed upon by UPRR, the Santa Ynez Band of Chumash Indians, and the SHPO. First, as required in the VSFB Integrated Cultural Resources Management Plan (ICRMP), an archaeologist and a Native American will monitor all ground-disturbing activities within 60 meters (200 feet) of known archaeological sites. Second, if previously unknown cultural resources are discovered during construction, work in the area within a 100-foot (30-meter) radius of the discovery will temporarily stop and the VSFB cultural resources manager will be notified. Procedures for unanticipated discoveries set forth in 36 CFR 800.13 and the Vandenberg SFB ICRMP will be followed. These include assessing the current eligibility status of the site with respect to the discovery, determining whether data recovery investigations of the area where the discovery occurred would be necessary, and preparing a report documenting the results of any investigations to be shared with the SHPO and the Santa Ynez Band of Chumash Indians. This report would determine whether construction would then be allowed to proceed or if additional mitigation measures would be necessary.

In the event that human remains are discovered any ground disturbing activities within the immediate area would cease, appropriate steps would be taken to secure and protect the remains, and the Santa Barbara County coroner would be contacted to investigate the circumstances, manner and cause of death, and provide recommendations concerning the treatment and disposition of the human remains. Additionally, the NAHC would notify those persons believed to be most likely descended from any deceased Native American whom may, with permission of UPRR or VSFB, inspect the remains and make their recommendations for any removal and nondestructive analysis of the remains.

Finally, construction activities have the potential to emit strong vibrations. The coastal bluffs in the area of the project consist of a midden that is susceptible to vibration and any cultural resources within these bluffs could be dislodged from the bluffs as a result of vibrations and fall onto the beach below. As such, UPRR recommended that a Monitoring and Response Plan for Vibration Impacts be implemented. Pursuant to the Monitoring and Response Plan for Vibration Impacts, if project construction vibrations cause exposed midden to erode, any midden would be recovered by a qualified archaeologist, analyzed for cultural resources, reported, and curated.

UPRR has agreed to implement the above measures into the project in order to avoid, minimize and mitigate potential adverse effects to cultural resources that may result from the Honda Bridge replacement project.

As mentioned above in Section B, UPRR conducted outreach to federally-recognized tribes during the NEPA process. That outreach is summarized in the project CC as follows:

> The Air Force Commander appointed Christopher Ryan (30 Civil Engineering Squadron, Installation Management Flight, Environmental Conservation [30 CES/CEIEA]) as the Installation Tribal Liaison Officer. Mr. Ryan carried out Native American consultation via email with Nakia Zavalla, the Santa Ynez Band of Chumash Indians' (SYBCI) tribal chairman's appointee to SLD 30 for Section 106 consultations. As the SYBCI is a federally recognized tribe, VSFB consulted with it on a government-to-government basis. On October 12, 2022, the Air Force formally notified the SYBCI of the Proposed Action and requested tribal comments. The Air Force will continue consultation with the SYBCI for the life of the Project.

In addition, Commission staff conducted outreach to Tribes with potential cultural affiliation to the project site, as identified by the Native American Heritage Commission. Staff received a request for consultation from Ernest Houston of the Northern Chumash Tribal Council (NCTC) and on July 17th, 2023, Commission staff met with Mr. Houston. At the meeting, Commission staff and Mr. Houston discussed the project scope, the results of the research and site-specific cultural resource surveys, and the proposed mitigation measures included with the project. Mr. Houston communicated the desire of NCTC to have a monitor from the Tribe available and onsite during ground disturbing activities. Next, Commission staff met with UPRR to discuss the result of the consultation and UPRR agreed to incorporate a monitor from NCTC into the project and ensure that the monitor would be present during ground disturbing activities.

Therefore, with the incorporation of the measures described above, the Commission finds the project consistent with Section 30244 of the Coastal Act.

I. Conflict Between Coastal Act Policies

As discussed in Section C. above, the proposed project is inconsistent with the requirement of Section 30240(a) of the Coastal Act, which limits uses in ESHA to uses "dependent upon the resources." Also as discussed in Section D, E and G above, to not authorize the project would conflict with several Coastal Act policies. In these types of situations, the Commission relies on the Legislative direction provided in Sections 30007.5 and 30200(b), which acknowledge that conflicts can occur between one or more Coastal Act policies, and if conflicts do occur, how they should be resolved. These policies provide:

Section 30200(b) of the Coastal Act states:

> Where the commission or any local government in implementing the provisions of this division identifies a conflict between the policies of this chapter, Section 30007.5 shall be utilized to resolve the conflict and the resolution of such conflicts shall be supported by appropriate findings setting forth the basis for the resolution of identified policy conflicts.

Section 30007.5 of the Coastal Act states:

> The Legislature further finds and recognizes that conflicts may occur between one or more policies of the division. The Legislature therefore declares that in carrying out the provisions of this division such conflicts be resolved in a manner that on balance is the most protective of significant coastal resources. In this context, the Legislature declares that broader policies which, for example, serve to concentrate development in close proximity to urban and employment centers may be more protective, overall, than specific wildlife habitat and other similar resource policies.

The Commission has developed a seven-part test it uses as assistance in determining whether a conflict between policies has occurred, and if so, how it can be resolved "in a manner which on balance is the most protective of significant coastal resources." The Commission has summarized these seven steps as follows:

1) The project, as proposed, is inconsistent with at least one Chapter 3 policy;
2) The project, if denied or modified to eliminate the inconsistency, would affect some coastal resource(s) in a manner inconsistent with at least one other Chapter 3 policy that affirmatively requires protection or enhancement of that resource(s);
3) The project, if approved, would be fully consistent with the policy that affirmatively mandates resource protection or enhancement;
4) The project, if approved, would result in tangible resource enhancement over existing conditions;
5) The benefits of the project are not independently required by some other body of law;
6) The benefits of the project must result from the main purpose of the project, rather than from an ancillary component appended to the project to "create a conflict"; and,
7) There are no feasible alternatives that would achieve the objectives of the project without violating any Chapter 3 policies.

Each of the above steps is explained in greater detail below, followed by how each applies to the proposed project:

1) The project, as proposed, is inconsistent with at least one Chapter 3 policy:

For the Commission to apply Section 30007.5, a proposed project must be inconsistent with an applicable Chapter 3 policy. As discussed in Section C above, the construction activities needed to replace the bridge must be located within ESHA. Construction activity for bridge replacement work is not a "resource-dependent" use, as required under Section 30240.

2) The project, if denied or modified to eliminate the inconsistency, would affect coastal resources in a manner inconsistent with at least one other Chapter 3

policy that affirmatively requires protection or enhancement of those resources:

A true conflict between Chapter 3 policies arises when a proposed project is inconsistent with one or more policies, but denial or modification of the project would also be inconsistent with at least one other Chapter 3 policy. Further, the inconsistency that would be caused by denial or modification must be with a policy that affirmatively mandates protection or enhancement of certain coastal resources. A Commission objection to the proposed bridge replacement would result in adverse coastal resource effects, including: (1) loss of significant lower cost public coastal access and recreation opportunities afforded by the popular Amtrak Surfliner and Coast Starlight rail lines which provide spectacular and unique coastal views to portions of the coast that are not publicly accessible or viewable in any other way, as well as a number of direct coastal access destinations throughout Southern California; (2) environmental hazards raised by potential bridge failure in the absence of the proposed replacement, including environmental damage to Honda Creek and associated sensitive habitats; (3) adverse air quality, water quality, greenhouse gas emissions, and excessive energy use, which would occur if users of the rail line needed to convert to automobile and truck transport, or significantly longer alternative rail corridors.

As described in Section G, the rail over Honda Bridge supports six Amtrak daily trains, and weekly freight trips. Each freight trip supports the equivalent of approximately 250 commercial truck trips per train, and each LOSSAN passenger line provides more than 2,000 seats, taking people from San Luis Obispo to San Diego. The Coast Starlight rail line reported approximately 190,000 passengers in 2021. In short, if rail service across the bridge was discontinued, the 119-mile trip between San Luis Obispo and Santa Barbara would have to be re-routed through Sacramento, Barstow and Los Angeles, adding more than 800 miles to the journey.

Therefore, the Commission finds that the project cannot be modified to avoid the inconsistency, and that to object to the project would be inconsistent with the wetlands, water quality, public coastal access and recreation, and air quality/energy consumption policies of the Coastal Act because it would prevent benefits from accruing to coastal resources that are inherent in the project and mandated by the policies of the Coastal Act. Those benefits include the maximization of existing and future public access, the facilitation of public transit and the minimization of vehicle miles traveled, the improvement of air and water quality by reducing traffic congestion, and the avoidance of adverse wetlands and water quality impacts if the bridge were to degrade to the point where parts or all of it were to fall into Honda Creek (or into the surrounding sensitive riparian habitat).

3) The project, if approved, would be fully consistent with the policy that affirmatively mandates resource protection or enhancement:

For denial of (or objection to) a project to be inconsistent with a Chapter 3 policy, the proposed project would have to protect or enhance the resource values for which the applicable Coastal Act policy includes an affirmative mandate. That is, if denial of (or objection to) a project would conflict with an affirmatively mandated Coastal Act policy, approval of the project would have to conform to that policy. If the Commission were to interpret this conflict resolution provision otherwise, then any proposal, no matter how inconsistent with Chapter 3, which offered a slight incremental improvement over existing conditions relevant to a single policy could result in a conflict that would allow the use of Section 30007.5. The Commission concludes that the conflict resolution provisions were not intended to apply to such minor incremental improvements.

As discussed previously in Step 2 above, the proposed project would not only protect against significant adverse effects to, but would affirmatively promote, public access, recreation, and transit, water quality, and air quality, and is therefore fully consistent with Coastal Act Sections 30210, 30213, 30231, 30232, 30252, and 30253.

4) The project, if approved, would result in tangible resource enhancement over existing conditions:

This aspect of the conflict between policies may be looked at from two perspectives – either approval of (or concurrence with) the project would result in improved conditions for a coastal resource subject to an affirmative mandate, or denial or modification of the project would result in the degradation of that resource. As discussed in Step 2 above, authorization of the proposed bridge replacement would maintain public access, recreation, and transit opportunities in the region, would protect water quality in Honda Creek through replacement of rusted bridge components and implementation of construction best management practices, and by replacing a 125+-year-old bridge at the end of its design life before collapse of the structure into the creek. Approval (or concurrence) would improve, or at least maintain, public transportation and freight service, which will help reduce automobile congestion, reduce automobile vehicle miles traveled and the corresponding non-point source emissions, and minimize energy consumption and vehicle miles traveled.

5) The benefits of the project are not independently required by some other body of law:

For benefits of a project to yield a conflict, those benefits that would cause objection to the project to be inconsistent with a Chapter 3 policy cannot be those that the project proponent is already being required to provide pursuant to another agency's directive or under another body of law. In other words, if the benefits would be provided regardless of the Commission's action on the proposed project, the project proponent cannot seek authorization of an otherwise un-authorizable project on the basis that the project would produce those benefits. In essence, the project proponent does not get credit for resource enhancements that it is already being compelled to provide. In this case, the

benefits of the project would not be provided in the absence of the Commission's authorization of this project.

6) The benefits of the project must result from the main purpose of the project, rather than from an ancillary component appended to the project to "create a conflict":

A project's benefits to coastal resources must be integral to the project purpose. If a project is inconsistent with a Chapter 3 policy, and the main elements of the project do not result in the cessation of ongoing degradation of a resource the Commission is charged with enhancing, the project proponent cannot "create a conflict" by adding to the project an independent component to remedy the resource degradation. The benefits of a project must be inherent in the purpose of the project. If this provision were otherwise, project proponents could regularly append tangential elements to their otherwise unauthorizable projects to "create conflicts" and then request that the Commission use Section 30007.5 to approve the unauthorizable projects. The conflict resolution provisions of the Coastal Act could not have been intended to foster such an artificial and easily manipulated process and were not designed to barter amenities in exchange for project approval.

The main purpose of the proposed project is to maintain rail capacity, which would, as discussed above, maintain public coastal access, recreation, and transit opportunities, and protect water and air quality through the provision of continued rail service to and along southern California coastal cities and towns. The benefits of the project result directly from the main purpose, and not from any ancillary component. Thus, this factor is satisfied as well.

7) There are no feasible alternatives that would achieve the objectives of the project without violating any Chapter 3 policies:

Finally, a project does not present a conflict among Chapter 3 policies if at least one feasible alternative would meet the project's objectives without violating any Chapter 3 policy. Thus, an alternatives analysis is a condition precedent to invocation of the conflict resolution approach. If there are alternatives available that are consistent with all of the relevant Chapter 3 policies, then the proposed project does not create a true conflict among those policies. As discussed in Sections C and D above, there are no feasible less damaging alternatives that would enable the bridge to be replaced in a manner that would reduce adverse impacts to ESHA.

Existence of a Conflict Between Chapter 3 Policies

Based on the above, the Commission finds that the proposed project presents a conflict between the resource-dependent use and habitat protection elements of Section 30240(a) on the one hand, and the mandates of Sections 30210, 30213, 30231, 30232,

30252, and 30253 on the other, a conflict that must be resolved through application of Section 30007.5, as described below.

Conflict Resolution

After establishing a conflict among Coastal Act policies, Section 30007.5 requires the Commission to resolve the conflict in a manner that is on balance most protective of coastal resources. In this case, the proposed project would result in a non-resource dependent use occurring within ESHA, thus making it inconsistent with Coastal Act Section 30240(a).

However, objecting to the project because of its inconsistency with the ESHA policy would result in significant adverse effects to public coastal access, recreation and transit, water quality, and air quality due the inability to maintain rail service over Honda Bridge. Objection to the project would thus be inconsistent with the affirmative policies of Sections 30210, 30213, 30231, 30232, 30252, and 30253 to protect and maintain public coastal access, recreation and transit, water quality, and air quality. The Commission finds that the impacts on coastal resources from not carrying out the project would be more significant and adverse than impacts stemming from the project's location within ESHA, which would be addressed by the avoidance, minimization, and mitigation measures incorporated into the project. The project is the least environmentally damaging feasible alternative, adverse impacts to EHSA would be remedied through a restoration plan, and the non-resource dependent use that is proposed in ESHA is necessary in order to continue providing rail service that has been in operation in this location for approximately 125 years. The Commission therefore concludes that the project would, on balance, be most protective of significant coastal resources, consistent with Coastal Act Section 30007.5. As such, it is consistent with Chapter 3 as a whole, and the Commission therefore concurs with the consistency certification.

APPENDIX A – SUBSTANTIVE FILE DOCUMENTS

1. UPRR Consistency Certification CC-0003-22, Althouse and Meade, August 9, 2022.

2. Draft Environmental Assessment for the La Canada Honda Bridge Replacement Project, Althouse and Meade, April 2023.

3. Habitat Restoration Plan for Union Pacific Railroad Milepost 304.88 La Canada Honda Bridge Replacement Project Santa Barbara Subdivision, Althouse and Meade, September 2023.

4. CC-0003-19 (UPRR, Replacement of existing Narlon Bridge rail crossing of San Antonio Creek)

5. CC-0001-18 (SANDAG, Eastbrook to Shell Double Track, San Diego County)

6. CC-0002-14/PWP-6-NCC-13-0203-1 (SANDAG/Caltrans, North Coast Corridor Public Works Plan/Transportation and Resource Enhancement Plan (NCC PWP/TREP), San Diego County)

7. NCC PWP/TREP Amendment No. PWP-6-NCC-16-0001-1.

8. CC-0001-17 (SANDAG, San Dieguito River Bridge Replacement and Double Track Project, San Diego County).

9. CC-0004-15 (SANDAG, San Elijo Lagoon Bridge Replacement and Double Track Project, San Diego County).

10. CC-0003-15 (SANDAG, San Diego River Railroad Bridge Replacement and Double Track Project, San Diego County).

11. CC-0006-14 (NCTD, San Dieguito River Railroad Bridge, Scour Repair Project, San Diego County).

12. CC-048-12 (SANDAG, San Onofre to Las Pulgas Double Track Project, San Diego County).

13. CC-009-12 (SANDAG, San Onofre-Pulgas Double Track Project).

14. CC-056-11 (SANDAG, Sorrento Valley Double Track Project, San Diego County).

15. CC-052-10 (SANDAG, Sorrento Valley Double Track project, San Diego County).

16. CC-075-09 (NCTD, Agua Hedionda Railroad Bridge and Double Track Project).

17. CC-055-05 (NCTD, Bridge replacement, Agua Hedionda Lagoon).

18. CC-052-05 (NCTD, Santa Margarita River double tracking project, Camp Pendleton).

20. CC-004-05 (NCTD, O’Neill to Flores double track project, Camp Pendleton).

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CC-0003-22 (UPRR)

October 13, 2023

EXHIBITS

EXHIBIT 1 (VICINITY MAP) 2

EXHIBIT 2 (OVERVIEW MAP) 3

EXHIBIT 3 (EXISTING AND PROPOSED BRIDGE) 4

EXHIBIT 4 (PROJECT PLANS) 5

EXHIBIT 5 (HABITAT IMPACTS) 10

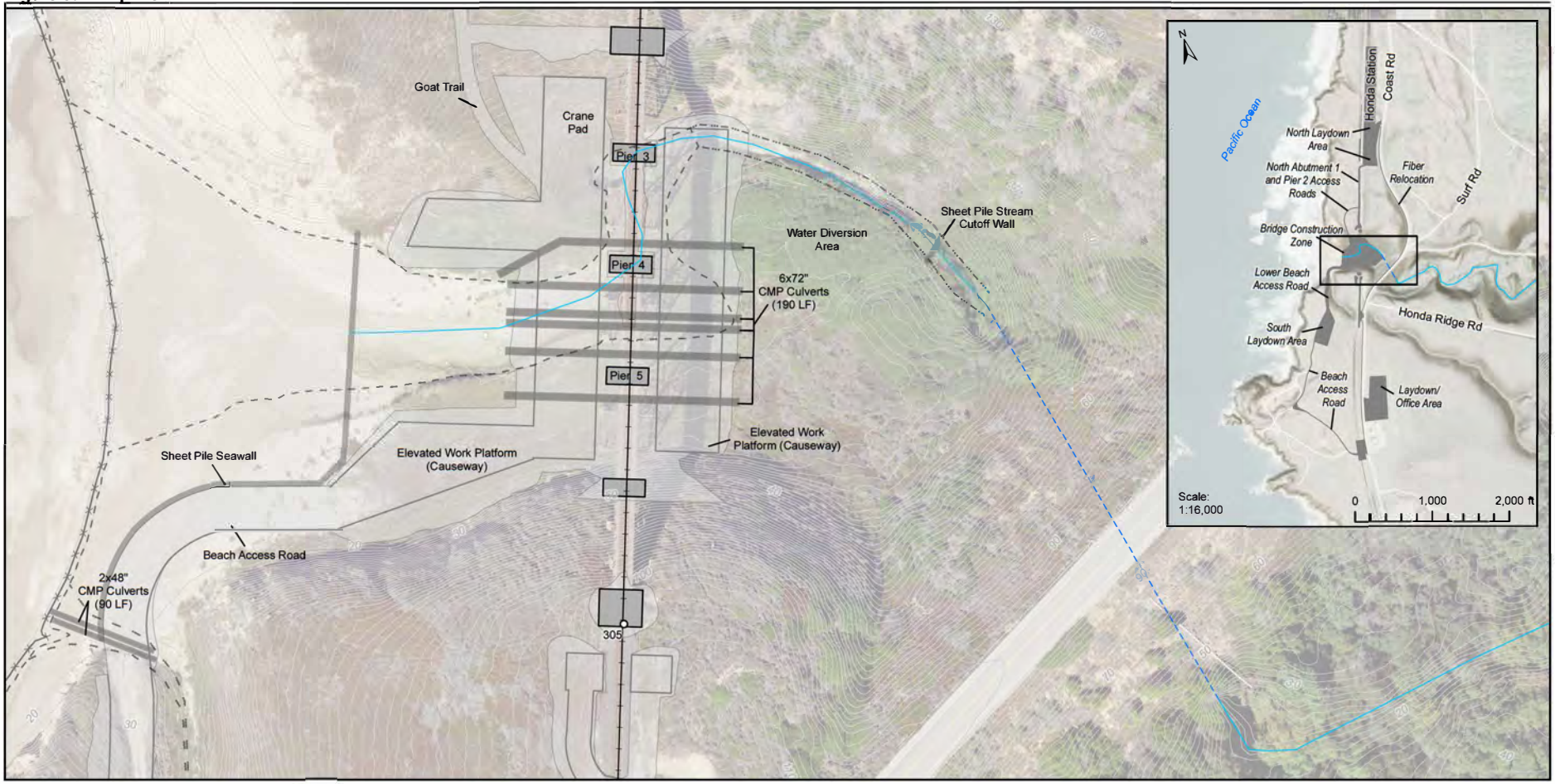
EXHIBIT 6 (ND FOR THE CULVERT REPAIR) 11

EXHIBIT 7 (ECDP) 12



Figure 1. Vicinity of Project Area

Figure 3a. Proposed Action Area



Legend

- Construction Footprint
- Piers and Abutments
- Project Components
- Railroad Track
- Milepost
- Honda Creek
- Culvert
- High Tide Line
- Mean High Water
- Ordinary High Water Mark

N

0 50 100 Feet

Union Pacific Railroad - La Cañada Honda Bridge Replacement
Map Center: 120.63558°W 34.6078°N
Santa Barbara County

Contour Interval: 2-foot
Imagery Source: VSFB, 2019 (Controlled Unclassified Information)

ALTHOUSE AND MEADE, INC.
BIOLOGICAL AND ENVIRONMENTAL SERVICES

Map Updated:
August 03, 2022 12:07 PM by ZAR

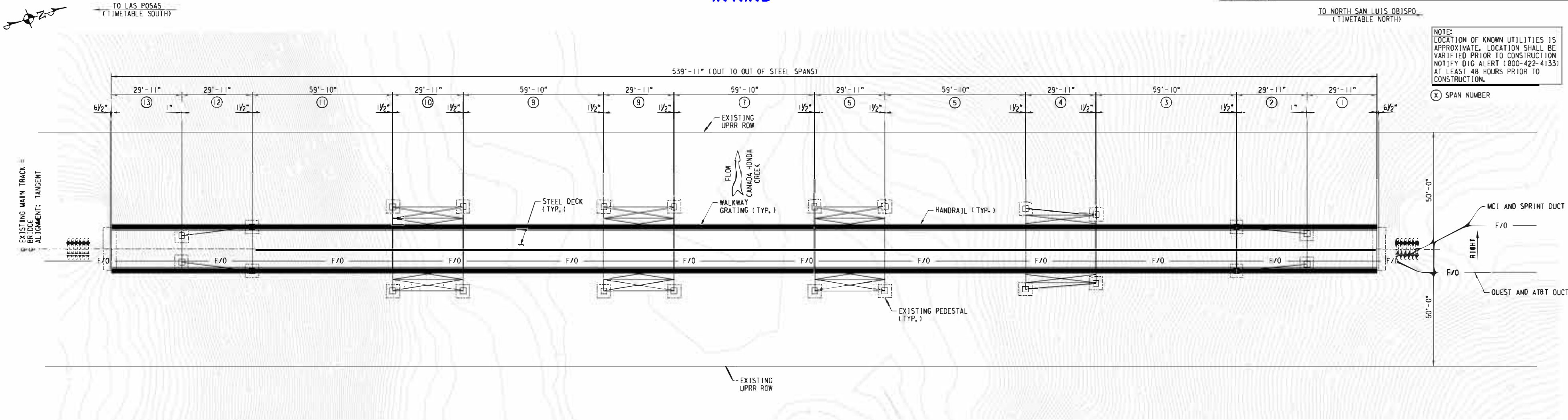
Exhibit 2
CC-0003-22

IN KIND

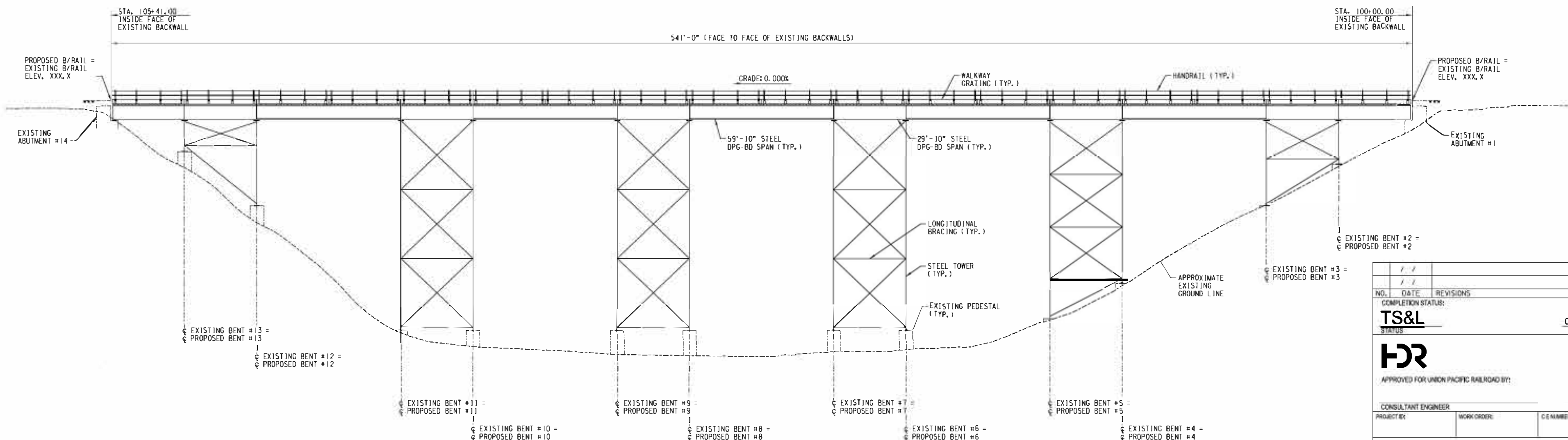
DRAWING SCHEDULE

THIS SET	SHEET NO.	DESCRIPTION
	S1	GENERAL ARRANGEMENT
	S2	TYPICAL SECTION

NOTE:
LOCATION OF KNOWN UTILITIES IS APPROXIMATE. LOCATION SHALL BE VARIFIED PRIOR TO CONSTRUCTION NOTIFY DIG ALERT (800-422-4133) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.



PLAN
SCALE: 1:20



ELEVATION
SCALE: 1:20

PRELIMINARY
NOT FOR CONSTRUCTION DATE: 01/20/21

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: TS&L — DATE: 01/20/2021

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER — DATE: / /

PROJECT ID: — WORK ORDER: — C.E.NUMBER:

LATITUDE: 34.60897°N LONGITUDE: 120.63561°W

DSN/CHK BY: MJW/LAG
DRAWN/CHK BY: MAM/MJW
UPRR ENGINEER: ADS
SHT NO.: S1 of S2

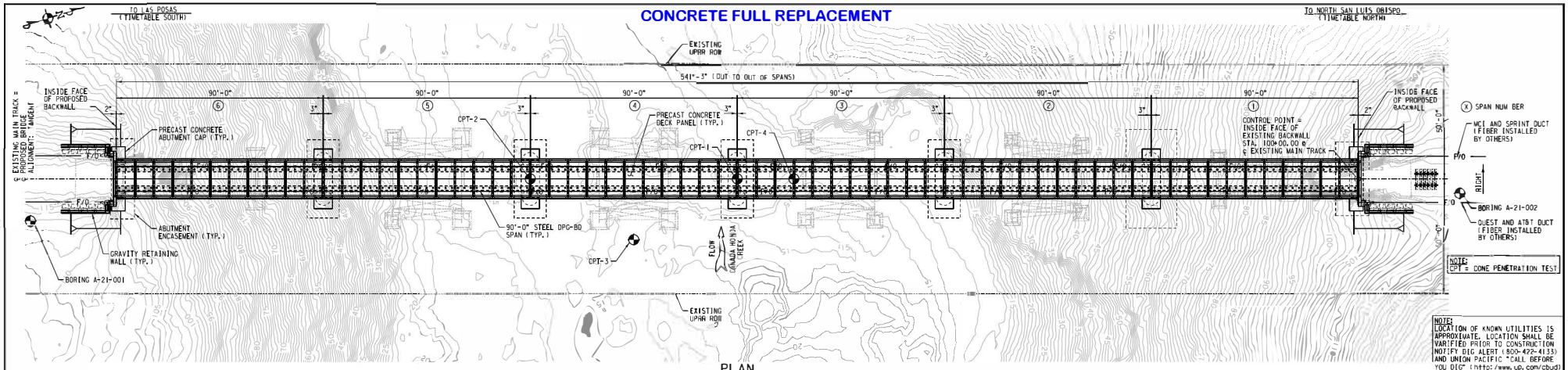
UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 304.89, SANTA BARBRA SUB.
CONCEPT #1 - 8-30' AND 5-60' STEEL DPG-BD SPANS
REPLACE SPANS AND BENTS

SHEET TITLE: GENERAL ARRANGEMENT

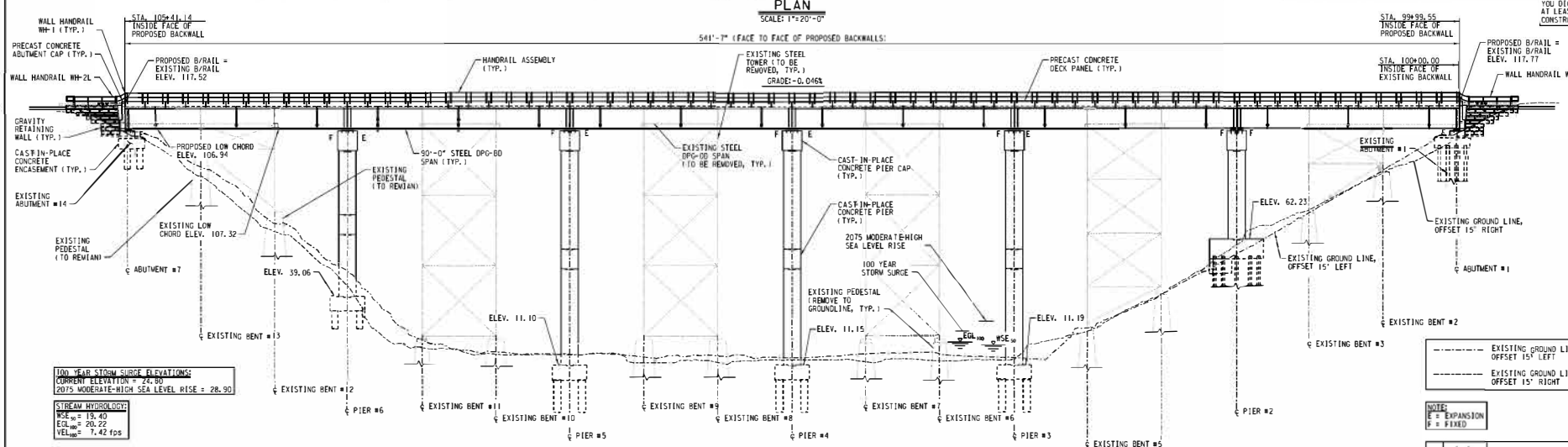
Exhibit 3
CC-0003-22

CONCRETE FULL REPLACEMENT



NOTE:
LOCATION OF KNOWN UTILITIES IS APPROXIMATE. LOCATION SHALL BE VARIFIED PRIOR TO CONSTRUCTION. NOTIFY DIG ALERT (800-422-4133) AND UNION PACIFIC "CALL BEFORE YOU DIG" (http://www.up.com/cbud) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.

PLAN
SCALE: 1"=20'-0"



100 YEAR STORM SURGE ELEVATIONS:
CURRENT ELEVATION = 24.80
2075 MODERATE-HIGH SEA LEVEL RISE = 28.90

STREAM HYDROLOGY:
WSE_{100} = 19.40
EGL_{100} = 20.22
VEL_{100} = 7.42 fps

EXISTING GROUND LINE, OFFSET 15' LEFT
EXISTING GROUND LINE, OFFSET 15' RIGHT

NOTE:
E = EXPANSION
F = FIXED

ELEVATION
SCALE: 1"=20'-0"

PRELIMINARY
NOT FOR CONSTRUCTION DATE: 06/24/22

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
90% STATUS
06/24/2022 DATE

HDR
APPROVED FOR UNION PACIFIC RAILROAD BY:
CONSULTANT ENGINEER DATE

PROJECT ID: | WORK ORDER: | C.E. NUMBER:

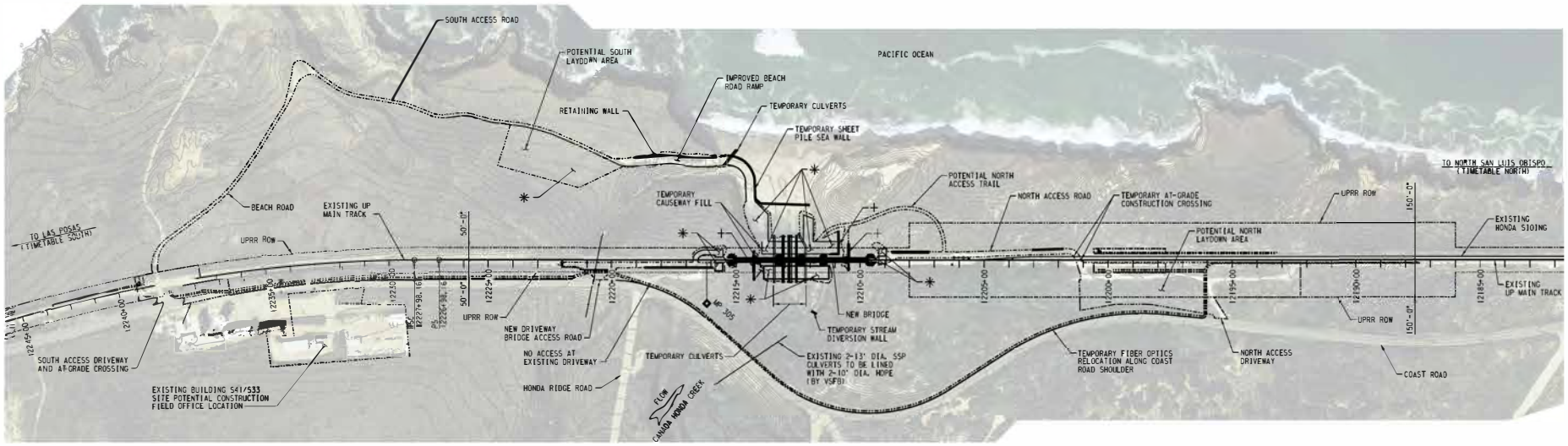
LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY: LAG/MJW	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/MJW	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: 6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
SHT NO.: S2 of S37	SHEET TITLE: GENERAL LAYOUT

PLOTTED: 6/24/2022 10:04:50 AM

FILE NAME: per//dfs.ds.net.corp.up.com/shared/up/dept/1030/3037/proj/0486.bca.dgn



SITE PLAN

SCALE: 1"=200'-0"

100 0 100 200

SCALE IN FEET

LEGEND:

* = POTENTIAL CRANE PAD LOCATIONS

\+ = TEMPORARY SHORING FOR EXCAVATION

..... = WORKING AREAS

PRELIMINARY

NOT FOR CONSTRUCTION DATE: 06/24/22

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

90% STATUS 06/24/2022 DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER / / DATE

PROJECT ID: WORK ORDER: C.E.NUMBER:

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

DRAWING SCHEDULE

THIS SHEET

SHEET NO.	DESCRIPTION
S1	SITE PLAN
S2	GENERAL LAYOUT
S3	GENERAL ARRANGEMENT (SHEET 1 OF 2)
S4	GENERAL ARRANGEMENT (SHEET 2 OF 2)
S5	GENERAL NOTES (SHEET 1 OF 4)
S6	GENERAL NOTES (SHEET 2 OF 4)
S7	GENERAL NOTES (SHEET 3 OF 4)
S8	GENERAL NOTES (SHEET 4 OF 4) AND BILL OF MATERIAL
S9	TYPICAL SECTIONS AND DETAILS (SHEET 1 OF 2)
S10	TYPICAL SECTIONS AND DETAILS (SHEET 2 OF 2)
S11	SUBSURFACE INFORMATION (SHEET 1 OF 4)
S12	SUBSURFACE INFORMATION (SHEET 2 OF 4)
S13	SUBSURFACE INFORMATION (SHEET 3 OF 4)
S14	SUBSURFACE INFORMATION (SHEET 4 OF 4)
S15	FOUNDATION PLAN
S16	FOUNDATION DETAILS
S17	RETAINING WALL CONSTRUCTION DETAILS (SHEET 1 OF 2)

THIS SHEET

SHEET NO.	DESCRIPTION
S18	RETAINING WALL CONSTRUCTION DETAILS (SHEET 2 OF 2)
S19	CONSTRUCTION DETAILS
S20	ABUTMENT #1 DETAILS (SHEET 1 OF 3)
S21	ABUTMENT #1 DETAILS (SHEET 2 OF 3)
S22	ABUTMENT #1 DETAILS (SHEET 3 OF 3)
S23	ABUTMENT #7 DETAILS (SHEET 1 OF 3)
S24	ABUTMENT #7 DETAILS (SHEET 2 OF 3)
S25	ABUTMENT #7 DETAILS (SHEET 3 OF 3)
S26	CAST-IN-PLACE CONCRETE PIER #2 DETAILS (SHEET 1 OF 3)
S27	CAST-IN-PLACE CONCRETE PIER #2 DETAILS (SHEET 2 OF 3)
S28	CAST-IN-PLACE CONCRETE PIER #2 DETAILS (SHEET 3 OF 3)
S29	CAST-IN-PLACE CONCRETE PIER #3, #4, AND #5 DETAILS (SHEET 1 OF 2)
S30	CAST-IN-PLACE CONCRETE PIER #3, #4, AND #5 DETAILS (SHEET 2 OF 2)
S31	CAST-IN-PLACE CONCRETE PIER #6 DETAILS (SHEET 1 OF 2)
S32	CAST-IN-PLACE CONCRETE PIER #6 DETAILS (SHEET 2 OF 2)
S33	CAST-IN-PLACE CONCRETE PIER CAP DETAILS
S34	CAST-IN-PLACE CONCRETE PIER STRUT DETAILS

THIS SHEET

SHEET NO.	DESCRIPTION
S35	PRECAST CONCRETE DECK PANEL LAYOUT
S36	WATERPROOFING AND DECK DRAINAGE DETAILS
S37	DECK DRAINAGE AND UTILITY SUPPORT DETAILS
P1	PRECAST CONCRETE ABUTMENT SEAT
P2	PRECAST CONCRETE ABUTMENT BACKWALL
P3	PRECAST CONCRETE DECK PANEL DETAILS (1 OF 2)
P4	PRECAST CONCRETE DECK PANEL DETAILS (2 OF 2)
F1	90' DPG SPAN FRAMING DETAILS
F2	90' DPG SPAN TYPICAL DETAILS
F3	90' DPG SPAN BRACING DETAILS (SHEET 1 OF 2)
F4	90' DPG SPAN BRACING DETAILS (SHEET 2 OF 2)
F5	90' DPG SPAN BEARING DETAILS
M1	MISCELLANEOUS STEEL DETAILS (SHEET 1 OF 2)
M2	MISCELLANEOUS STEEL DETAILS (SHEET 2 OF 2)

DSN/CHK BY:	NPD/LAG
DRAWN/CHK BY:	MAM/NPD
UPRR ENGINEER:	ADS
SHT NOS:	S1 of S37

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBRA SUB

6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

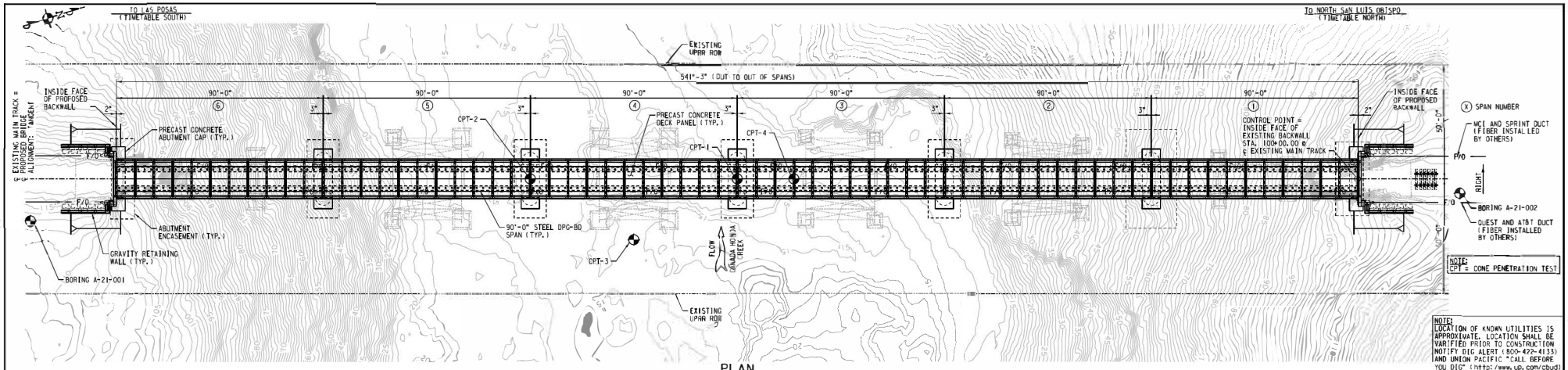
SHEET TITLE: SITE PLAN

PLOTTED: 6/24/2022 10:04:46 PM

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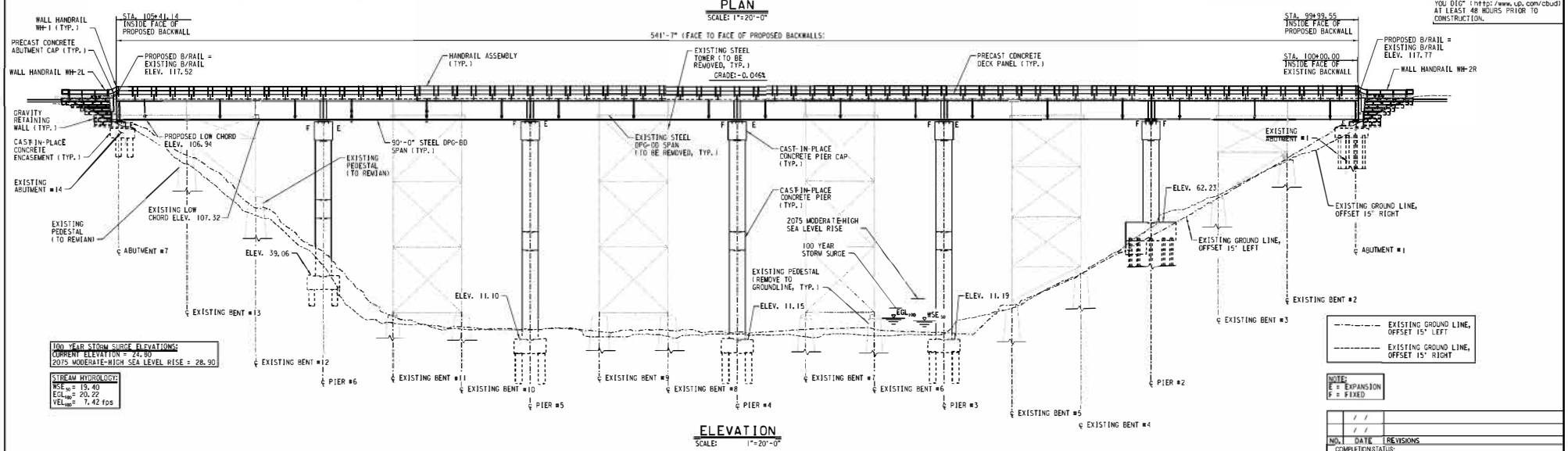
Exhibit 4

CC-0003-22



PLAN

SCALE: 1"=20'-0"



ELEVATION

SCALE: 1"=20'-0"

100 YEAR STORM SURGE ELEVATIONS:
CURRENT ELEVATION = 24.80
2075 MODERATE-HIGH SEA LEVEL RISE = 28.90

STREAM HYDROLOGY:
WSE_{100} = 19.40
EGL_{100} = 20.22
VEL_{100} = 7.42 fps

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
90% STATUS
06/24/2022 DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER DATE

PROJECT ID: | WORK ORDER: | C.E. NUMBER:

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

PRELIMINARY
NOT FOR CONSTRUCTION DATE: 06/24/22

DSN/CHK BY:	LAG/MJW
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S2 of S37

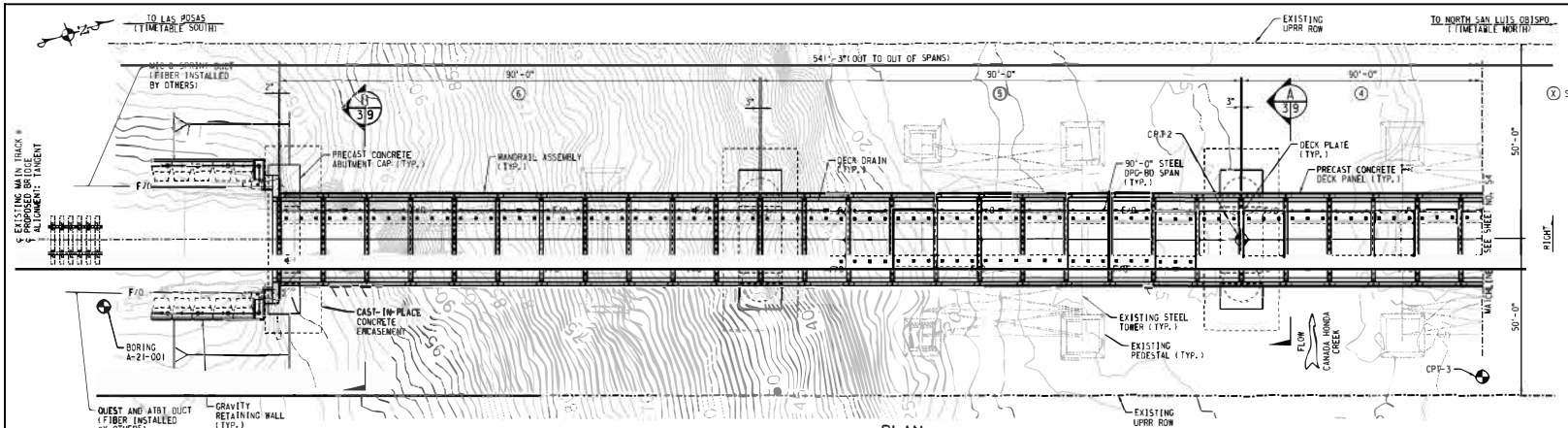
UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE:
GENERAL LAYOUT

FILE NAME: p:\PDS_US\Net Local\2U41951\03\3037\src\X04BL3.dgn

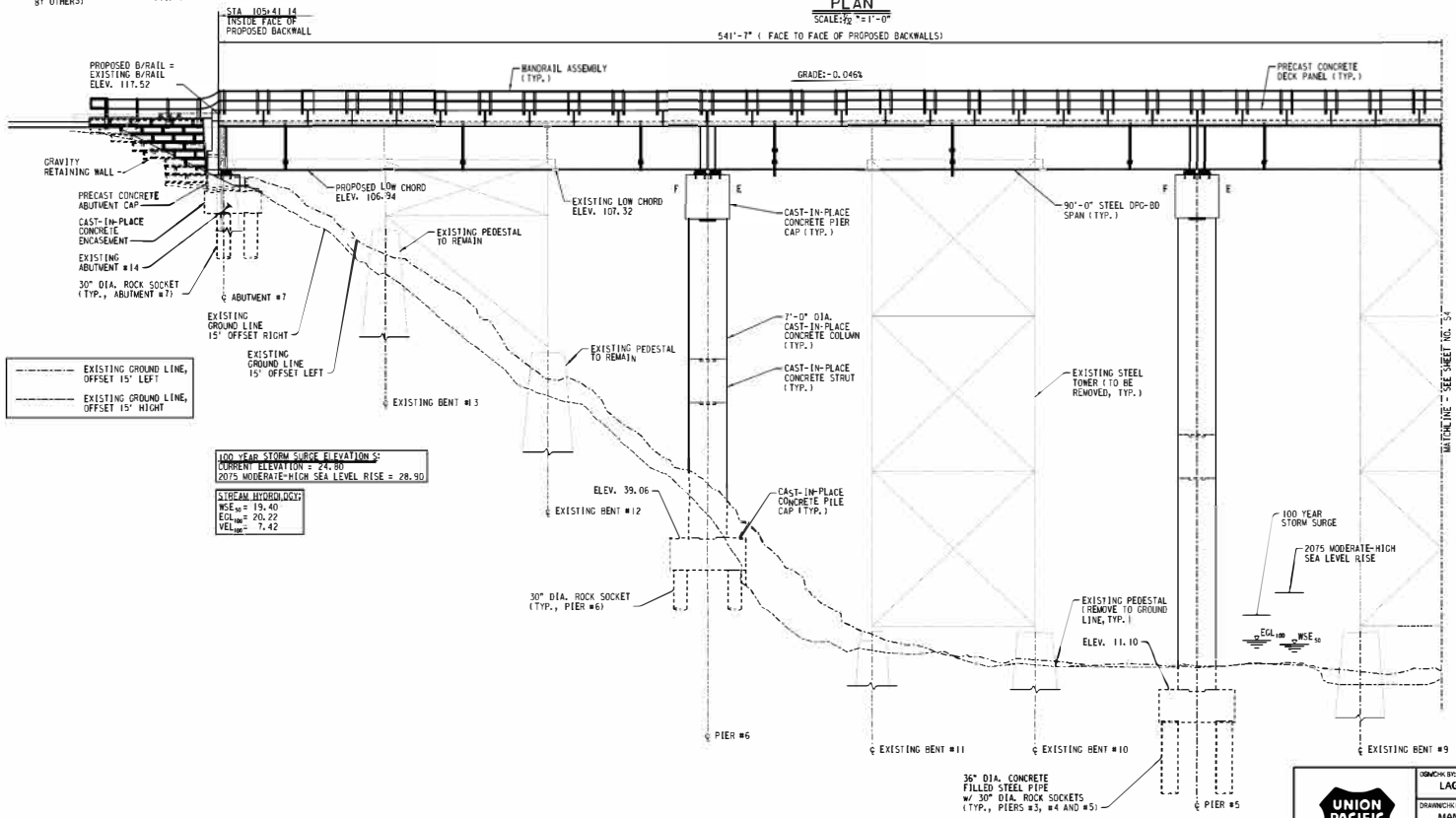
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NOTE:
LOCATION OF KNOWN UTILITIES IS APPROXIMATE. LOCATION SHALL BE VARIFIED PRIOR TO CONSTRUCTION NOTIFY DIG ALERT (800-422-4133) AND UNION PACIFIC "CALL BEFORE YOU DIG" (http://www.up.com/cbud) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.

NOTE:
CPT = CONE PENETRATION TEST

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



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

EST. LIFTING WEIGHTS
90'-0" DPG SPAN, GIRDER ONLY = 52,515 LB. (26.3 TON)
90'-0" DPG SPAN, ASSEMBLED STEEL ONLY = 122,230 LB. (61.2 TON)
90'-0" DPG SPAN w/ CONCRETE DECK = 367,530 LB. (183.8 TON)
PRECAST CONCRETE ABUTMENT CAP = 82,800 LB. (41.4 TON)
PRECAST CONCRETE ABUTMENT BACKWALL = 51,695 LB. (25.9 TON)
PRECAST CONCRETE DECK PANEL = 22,300 LB. (11.2 TON)

NOTE:
E = EXPANSION
F = FIXED

LETTER SERIES
SHEET NO. CUT ON
SHEET NO. SHOWN ON
SECTION DESIGNATION

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
90% STATUS — 06/24/2022 DATE

HDR
APPROVED FOR UNION PACIFIC RAILROAD BY:
CONSULTANT ENGINEER — DATE
PROJECT ID: | WORK ORDER: | C.E. NUMBER:

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

PRELIMINARY
NOT FOR CONSTRUCTION DATE: 06/24/22

DSN/CHK BY:	LAG/MJW
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S3 of S37

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION: 6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: GENERAL ARRANGEMENT (SHEET 1 OF 2)

FILE NAME: per://KPL-IS.net.unet.up/419P/100/3037/mpc/04GEN.pcx.dgn
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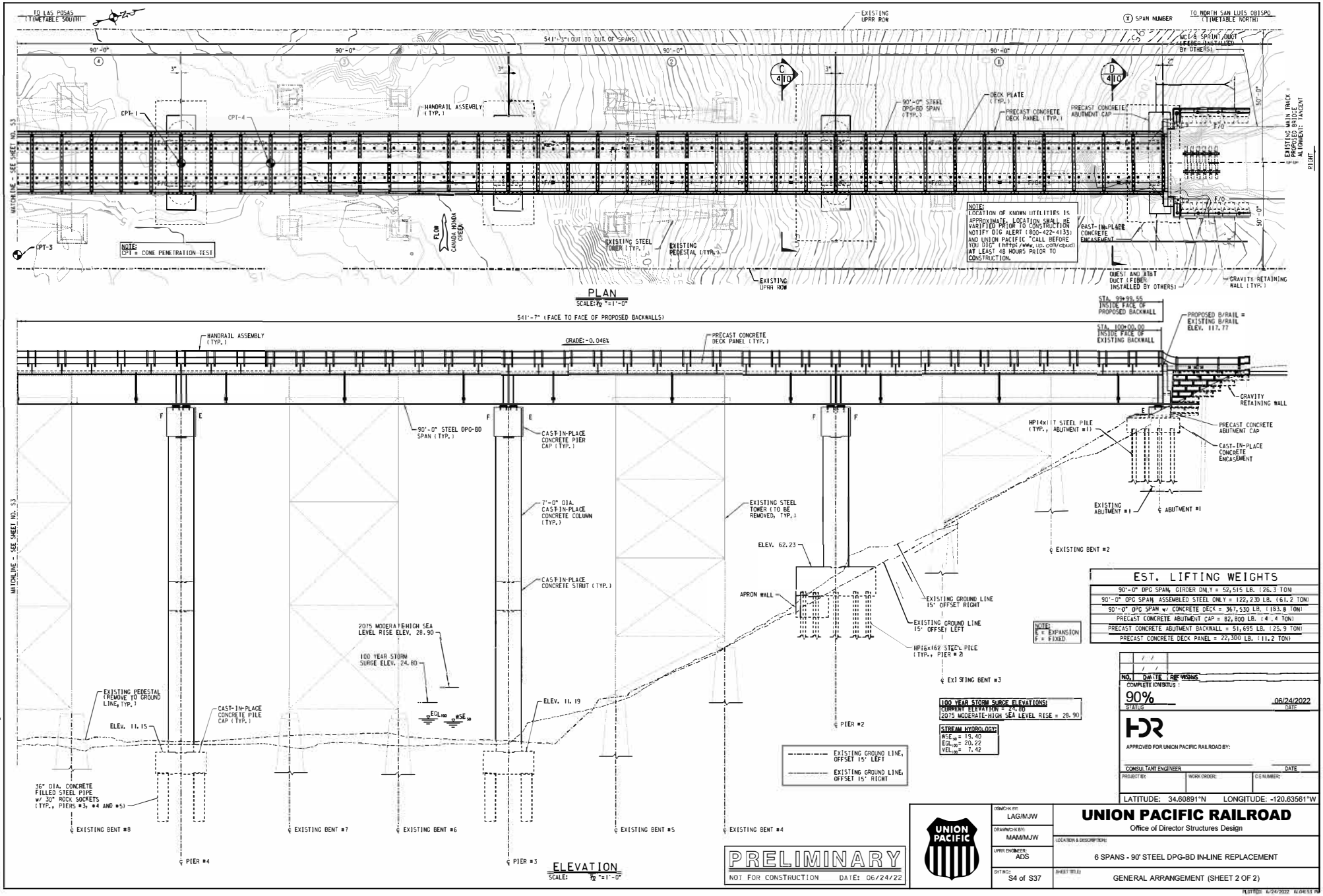

TO LAS POSAS (TIMETABLE SOUTH)
TO NORTH SAN LUIS OBISPO (TIMETABLE NORTH)
EXISTING UPRR ROW
X SPAN NUMBER
541'-7" (OUT TO OUT OF SPANS)
90'-0"
HANDRAIL ASSEMBLY (TYP.)
90'-0" STEEL DPG-BD SPAN (TYP.)
DECK PLATE (TYP.)
PRECAST CONCRETE DECK PANEL (TYP.)
PRECAST CONCRETE ABUTMENT CAP
CAST-IN-PLACE CONCRETE ENCASEMENT
CPT-1
CPT-4
CPT-3
NOTE: CPT = CONE PENETRATION TEST
FLOW
CANADA HONDA CREEK
EXISTING STEEL TOWER (TYP.)
EXISTING PEDESTAL (TYP.)
NOTE: LOCATION OF KNOWN UTILITIES IS APPROXIMATE. LOCATION SHALL BE VERIFIED PRIOR TO CONSTRUCTION NOTIFY DIG ALERT (800-422-4133) AND UNION PACIFIC "CALL BEFORE YOU DIG" (http://www.up.com/cbud) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
QUEST AND AT&T DUCT (FIBER INSTALLED BY OTHERS)
GRAVITY RETAINING WALL (TYP.)
MATCHLINE - SEE SHEET NO. 53
PLAN
SCALE: 1/32"=1'-0"
541'-7" (FACE TO FACE OF PROPOSED BACKWALLS)
STA. 99+99.55 INSIDE FACE OF PROPOSED BACKWALL
STA. 100+00.00 INSIDE FACE OF EXISTING BACKWALL
PROPOSED B/RAIL = EXISTING B/RAIL ELEV. 117.77
GRADE: -0.046%
90'-0" STEEL DPG-BD SPAN (TYP.)
CAST-IN-PLACE CONCRETE PIER CAP (TYP.)
7'-0" DIA. CAST-IN-PLACE CONCRETE COLUMN (TYP.)
CAST-IN-PLACE CONCRETE STRUT (TYP.)
HP14x117 STEEL PILE (TYP., ABUTMENT #1)
PRECAST CONCRETE ABUTMENT CAP
CAST-IN-PLACE CONCRETE ENCASEMENT
EXISTING ABUTMENT #1
℄ ABUTMENT #1
EXISTING STEEL TOWER (TO BE REMOVED, TYP.)
ELEV. 62.23
℄ EXISTING BENT #2
APRON WALL
EXISTING GROUND LINE 15' OFFSET RIGHT
EXISTING GROUND LINE 15' OFFSET LEFT
HP16x162 STEEL PILE (TYP., PIER # 2)
℄ EXISTING BENT #3
2075 MODERATE-HIGH SEA LEVEL RISE ELEV. 28.90
100 YEAR STORM SURGE ELEV. 24.80
EGL100
WSE50
ELEV. 11.19
EXISTING PEDESTAL (REMOVE TO GROUND LINE, TYP.)
CAST-IN-PLACE CONCRETE PILE CAP (TYP.)
ELEV. 11.15
36" DIA. CONCRETE FILLED STEEL PIPE w/ 30" ROCK SOCKETS (TYP., PIERS #3, #4 AND #5)
℄ PIER #2
℄ EXISTING BENT #8
℄ EXISTING BENT #7
℄ EXISTING BENT #6
℄ EXISTING BENT #5
℄ EXISTING BENT #4
℄ PIER #4
℄ PIER #3
ELEVATION
SCALE: 1/32"=1'-0"
EXISTING GROUND LINE, OFFSET 15' LEFT
EXISTING GROUND LINE, OFFSET 15' RIGHT
NOTE: E = EXPANSION F = FIXED
EST. LIFTING WEIGHTS
90'-0" DPC SPAN, GIRDER ONLY = 52,515 LB. (26.3 TON)
90'-0" DPC SPAN, ASSEMBLED STEEL ONLY = 122,230 LB. (61.2 TON)
90'-0" DPC SPAN w/ CONCRETE DECK = 367,530 LB. (183.8 TON)
PRECAST CONCRETE ABUTMENT CAP = 82,800 LB. (41.4 TON)
PRECAST CONCRETE ABUTMENT BACKWALL = 51,695 LB. (25.9 TON)
PRECAST CONCRETE DECK PANEL = 22,300 LB. (11.2 TON)
100 YEAR STORM SURGE ELEVATIONS:
CURRENT ELEVATION = 24.80
2075 MODERATE-HIGH SEA LEVEL RISE = 28.90
STREAM HYDROLOGY:
WSE50 = 19.40
EGL100 = 20.22
VEL100 = 7.42
NO. DATE REVISIONS
COMPLETE IDNSTRUS :
90%
STATUS
06/24/2022
DATE
HDR
APPROVED FOR UNION PACIFIC RAILROAD BY:
CONSULTANT ENGINEER
DATE
PROJECT ID:
WORK ORDER:
C.E.NUMBER:
LATITUDE: 34.60891°N
LONGITUDE: -120.63561°W
PRELIMINARY
NOT FOR CONSTRUCTION
DATE: 06/24/22
UNION PACIFIC
DSN/CHK BY: LAG/MJW
DRAWN/CHK BY: MAM/MJW
UPRR ENGINEER: ADS
SHT NO: S4 of S37
UNION PACIFIC RAILROAD
Office of Director Structures Design
LOCATION & DESCRIPTION:
6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
SHEET TITLE:
GENERAL ARRANGEMENT (SHEET 2 OF 2)
FILE NAME: p:\CPL_IS_Net-cad_CU\4195\100\3037\acad\GAB\bnsfa.dgn
PLOTTED: 6/24/2022 10:04:53 AM

Figure 3. Habitat Impacts

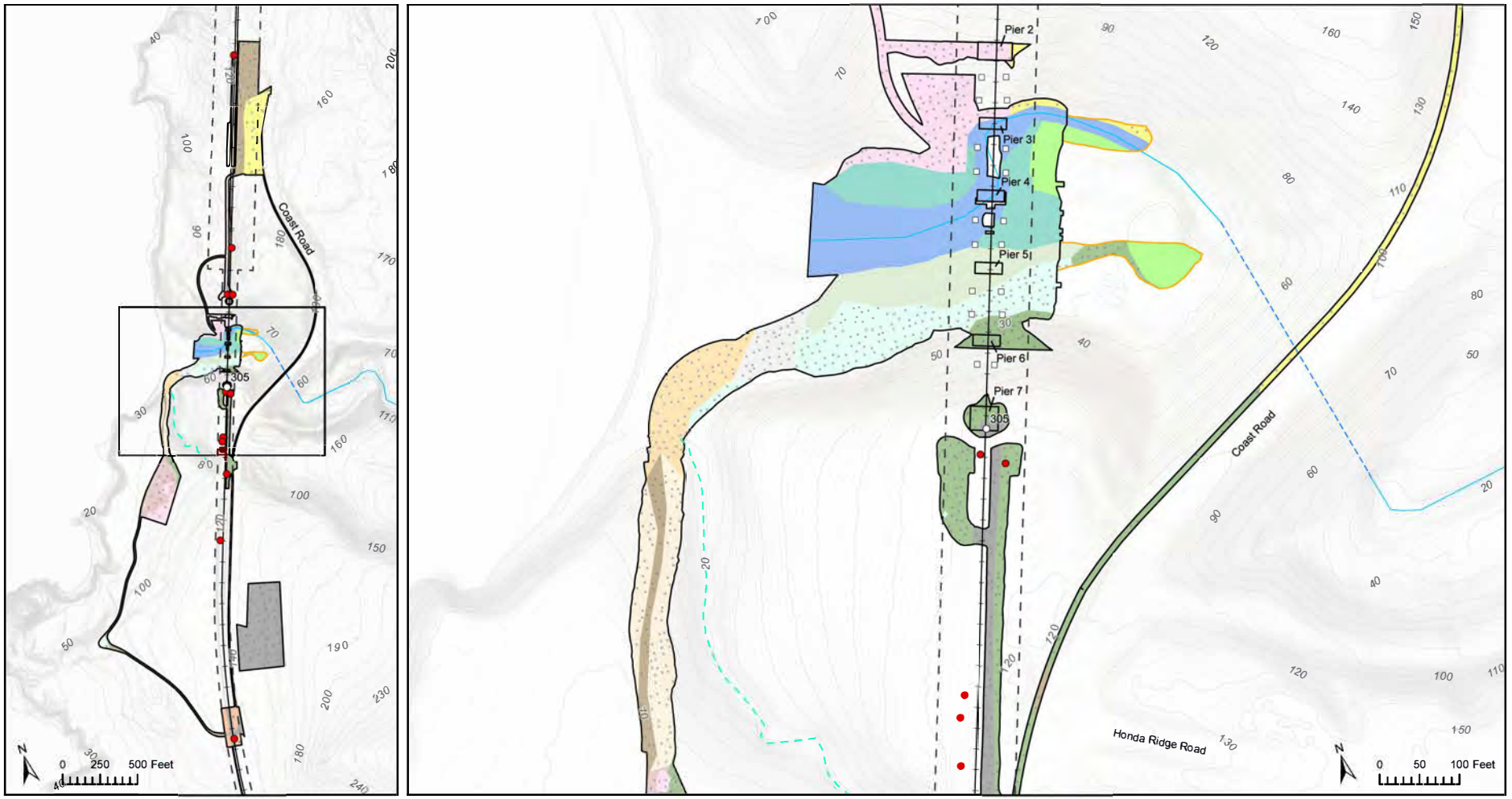


Exhibit 5
CC-0003-22

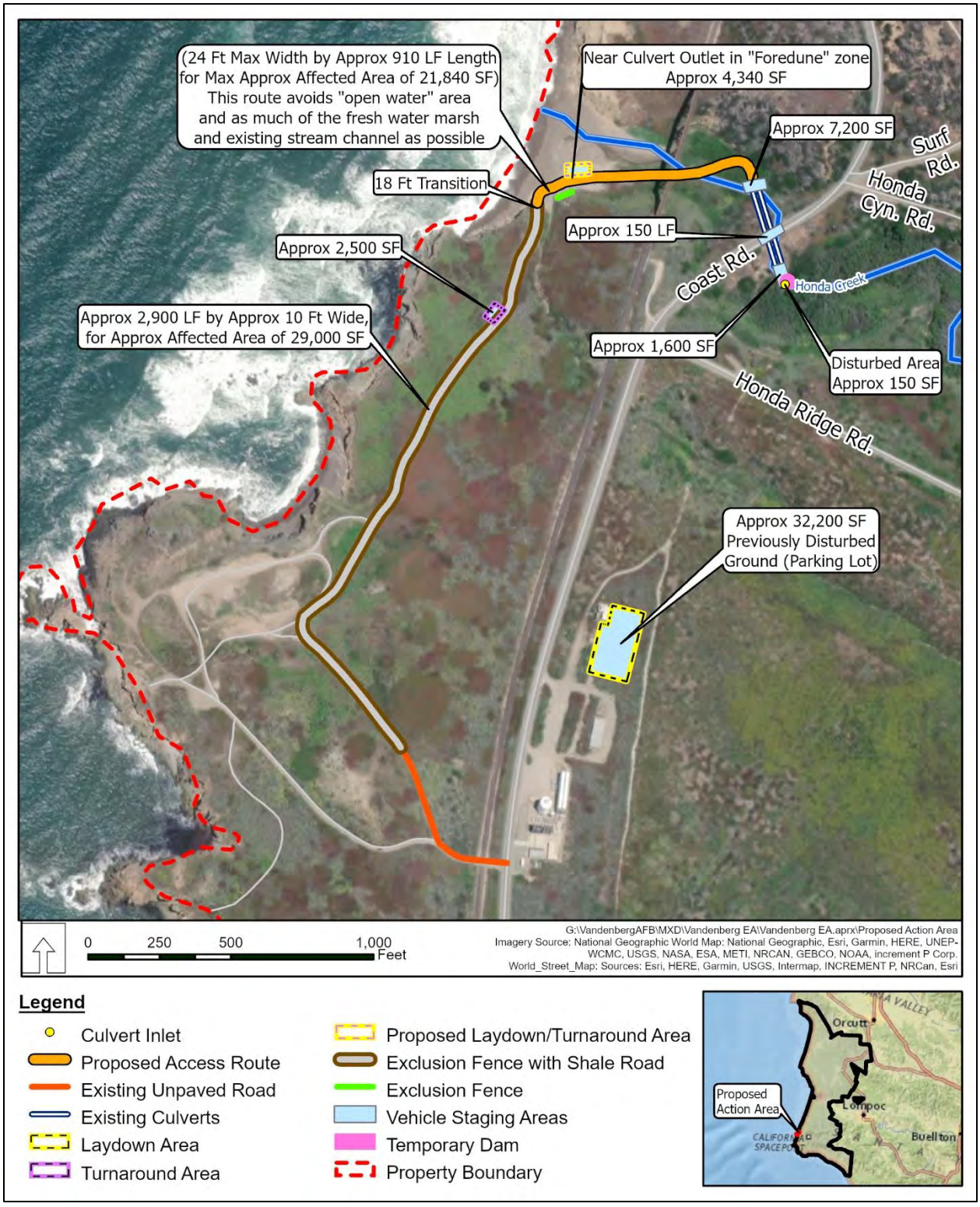


Figure 3. Proposed Action Area

Figure 2. Aerial View Honda Bridge Emergency Project Footprint



Legend

- Construction Site Boundary*
- UPRR Property
- Railroad Track
- Culvert
- Ephemeral Drainage
- Honda Creek
- Original Honda Creek Flowline
- Milepost

N

0 200 400 Feet

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.63834°W 34.60534°N
Santa Barbara County, California

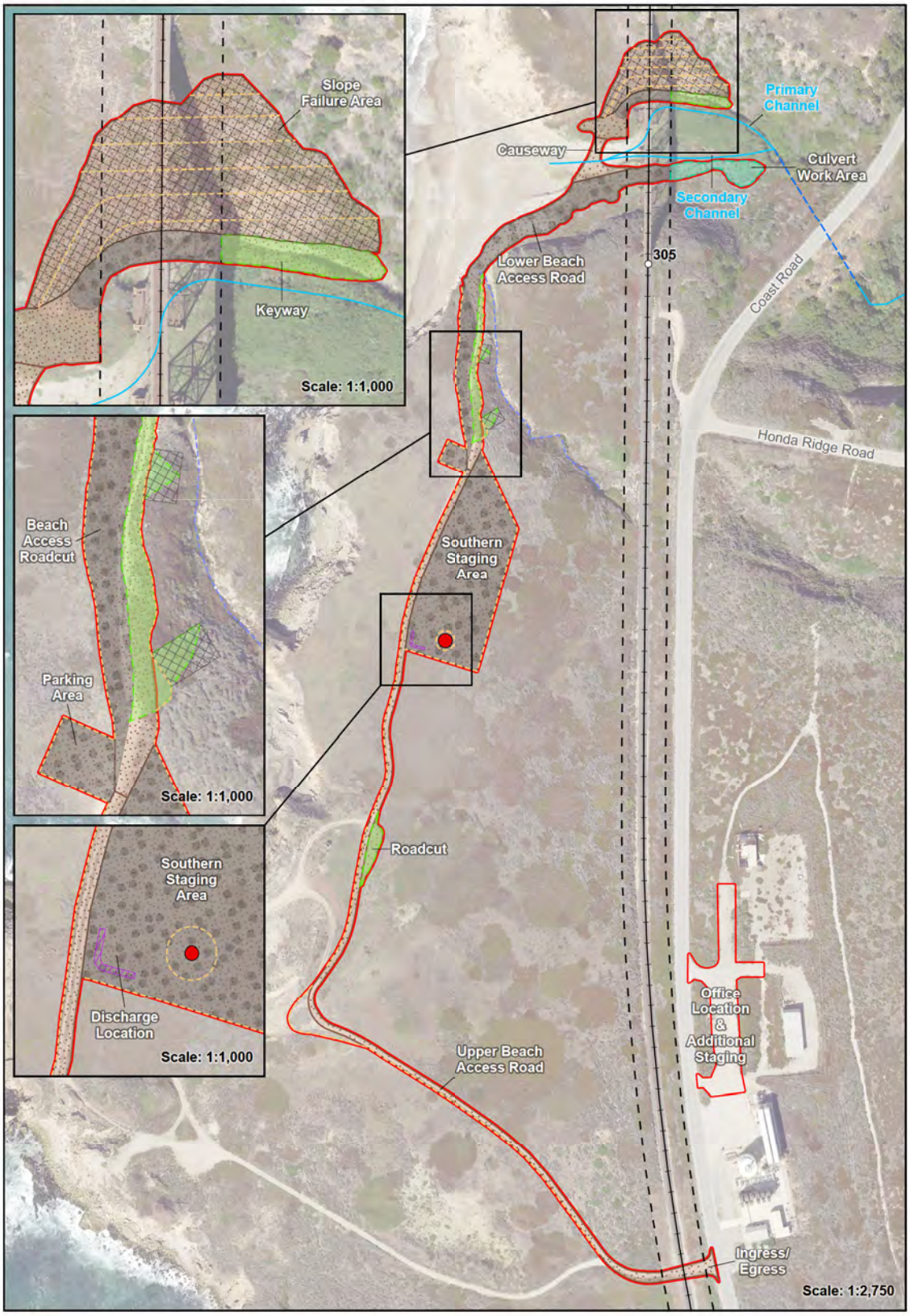
Imagery Source: VSFB, 2019 (Controlled Unclassified Information)

Map Updated: April 04, 2023 01:23 PM by SAF

*All area outside Construction Site Boundary is considered ESH

Exhibit 7
CC-0003-22

Figure 4. Honda Emergency Restoration and Site Stabilization



Legend

- Construction Site Boundary*
- UPRR Property
- Soil Disturbance
- Clean Rock
- Runoff Control (Coconut Fiber Blanket)
- Sediment Control (Berm)
- Erosion Control
- Upland Seed Mix
- Wetland Seed Mix
- Sediment/Runoff Control (Straw Wattles)
- Railroad Track
- Culvert
- Ephemeral Drainage
- Honda Creek
- Contours
- Riprap Pile
- Milepost

N

0 200 400 Feet

Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.63834°W 34.60534°N
Santa Barbara County, California

*All area outside Construction Site Boundary is considered ESH

Imagery Source: VSFB, 2019 (Controlled Unclassified Information)

Map Updated: April 04, 2023 01:26 PM by SAF

APPENDIX G. FAA DETERMINATION

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2022-AWP-10643-OE

Issued Date: 06/30/2022

Steve Cheney
Union Pacific Railroad
1400 Douglas Street
Omaha, NE 68179

****DETERMINATION OF NO HAZARD TO AIR NAVIGATION FOR TEMPORARY STRUCTURE****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Mobile Crane 300 tonne and 600 tonne crane
Location:	Lompoc, CA
Latitude:	34-36-29.80N NAD 83
Longitude:	120-38-10.60W
Heights:	15 feet site elevation (SE) 300 feet above ground level (AGL) 315 feet above mean sea level (AMSL)

This aeronautical study revealed that the temporary structure does not exceed obstruction standards and would not be a hazard to air navigation provided the condition(s), if any, in this letter is (are) met:

SEE ATTACHMENT FOR ADDITIONAL CONDITION(S) OR INFORMATION

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of a structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination did not include an evaluation of the permanent structure associated with the use of this temporary structure. If the permanent structure will exceed Title 14 of the Code of Federal Regulations, part 77.9, a separate aeronautical study and FAA determination is required.

This determination concerns the effect of this temporary structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Aviation Administration Flight Procedures Office if the structure is subject to the issuance of a Notice To Airman (NOTAM).

If you have any questions, please contact our office at (206) 231-2877, or Nicholas.Sanders@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2022-AWP-10643-OE

Signature Control No: 531756580-540699875 (TMP)
Nicholas Sanders
Technician

Additional Condition(s) or Information for ASN 2022-AWP-10643-OE

Proposal: To construct and/or operate a(n) Mobile Crane to a height of 300 feet above ground level, 315 feet above mean sea level.

Location: The structure will be located 8.15 nautical miles south of VBG Airport reference point.

Part 77 Obstruction Standard(s) Exceeded and Aeronautical Impacts, if any:

Aeronautical study revealed that the temporary structure will not exceed any Part 77 obstruction standard. Aeronautical study confirmed that the temporary structure will have no effect on any existing or proposed arrival, departure or en route instrument/visual flight rules (IFR/VFR) operations or procedures. Additionally, aeronautical study confirmed that the temporary structure will have no physical or electromagnetic effect on the operation of air navigation and communications facilities and will not impact any airspace and routes used by the military. Based on this aeronautical study, the FAA finds that the temporary structure will have no adverse effect on air navigation and will not impact any aeronautical operations or procedures.

Based on this aeronautical study, the structure would not constitute a substantial adverse effect on aeronautical operations or procedures because it will be temporary. The temporary structure would not be considered a hazard to air navigation provided all of the conditions specified in this determination are strictly met.

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, flags/red lights-Chapters 3(Marked),4,5(Red),14(Temporary),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

This determination expires on 12/30/2023 unless extended, revised, or terminated by the issuing office.

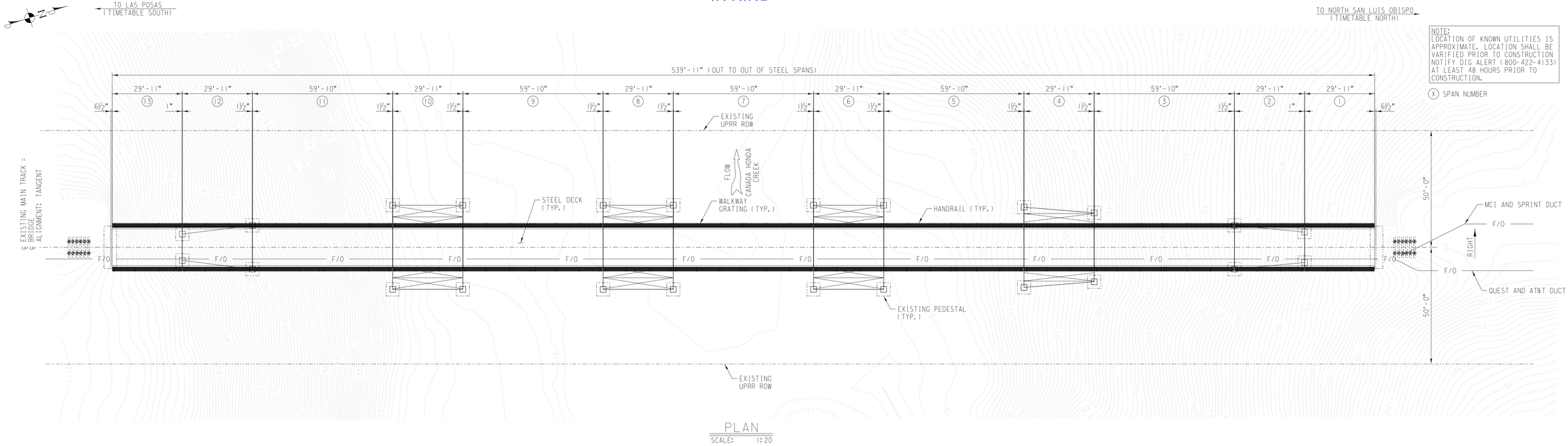
NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

APPENDIX H. ALTERNATIVE BRIDGE PLAN AND PROFILE SHEETS

DRAWING SCHEDULE

THIS SET	SHEET NO.	DESCRIPTION
	S1	GENERAL ARRANGEMENT
	S2	TYPICAL SECTION

IN KIND



PRELIMINARY
NOT FOR CONSTRUCTION DATE: 01/20/21

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
TS&L — STATUS
01/20/2021 — DATE

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER — / / DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:

LATITUDE: 34.60897°N LONGITUDE: 120.63561°W

DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S1 of S2

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 304.89, SANTA BARBRA SUB.
CONCEPT #1 - 8-30' AND 5-60' STEEL DPG-BD SPANS
REPLACE SPANS AND BENTS

SHEET TITLE:
GENERAL ARRANGEMENT

FILE NAME: $$$$$$$$$$$$$FILE NAME$$$$$$$$$$$$$$$

PLOTTED: $$$$DATE$$$$ $TIME

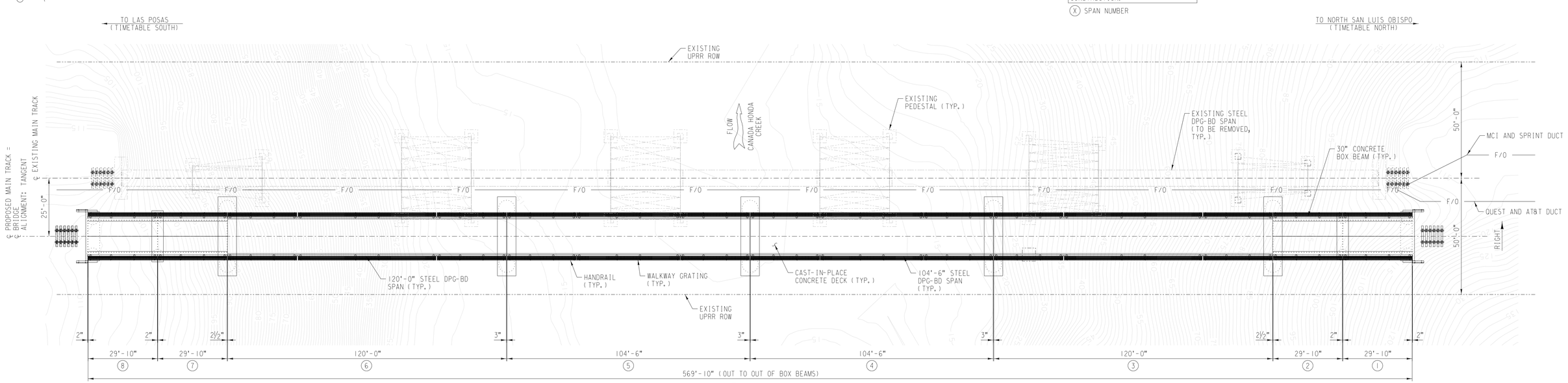
OFF LINE (EAST OR WEST)

NOTE:
LOCATION OF KNOWN UTILITIES IS APPROXIMATE. LOCATION SHALL BE VARIFIED PRIOR TO CONSTRUCTION. NOTIFY DIG ALERT (800-422-4133) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.

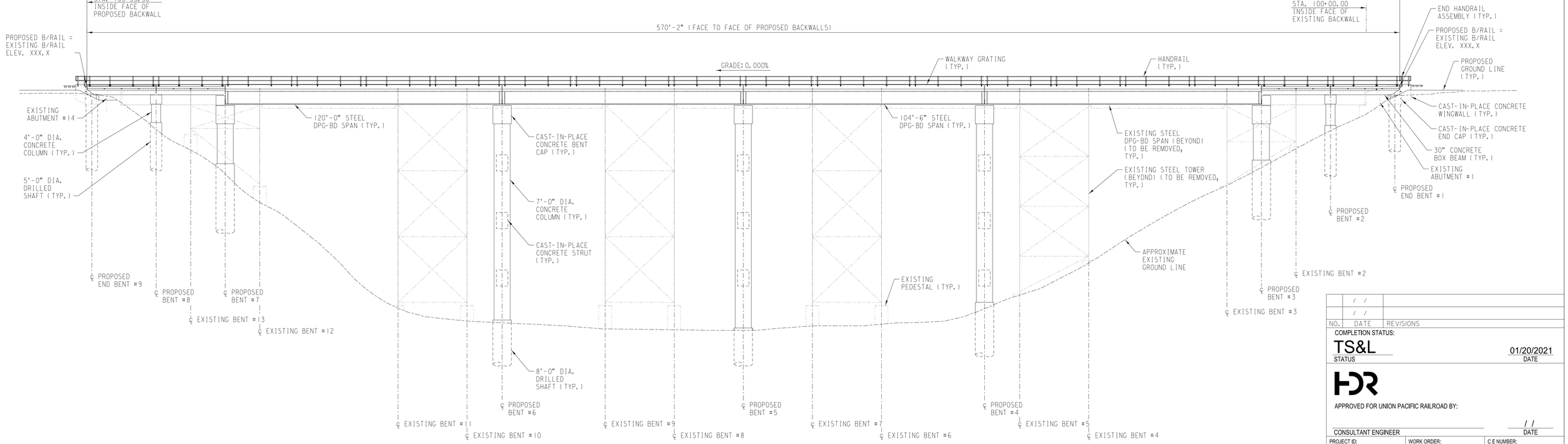
(X) SPAN NUMBER

DRAWING SCHEDULE

THIS SET	SHEET NO.	DESCRIPTION
	S1	GENERAL ARRANGEMENT
	S2	TYPICAL SECTION



PLAN
SCALE: 1:20



ELEVATION
SCALE: 1:20

PRELIMINARY
NOT FOR CONSTRUCTION DATE: 01/20/21

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
TS&L — STATUS
01/20/2021 — DATE

APPROVED FOR UNION PACIFIC RAILROAD BY:
CONSULTANT ENGINEER — DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:

LATITUDE: 34.60897°N LONGITUDE: 120.63561°W

DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S1 of S2

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 304.89, SANTA BARBRA SUB.
CONCEPT #2 - 4-30' PCB, 2-104'-6" STEEL DPG-BD AND 2- 120' STEEL DPG-BD SPANS OFFLINE REPLACEMNET

SHEET TITLE: GENERAL ARRANGEMENT

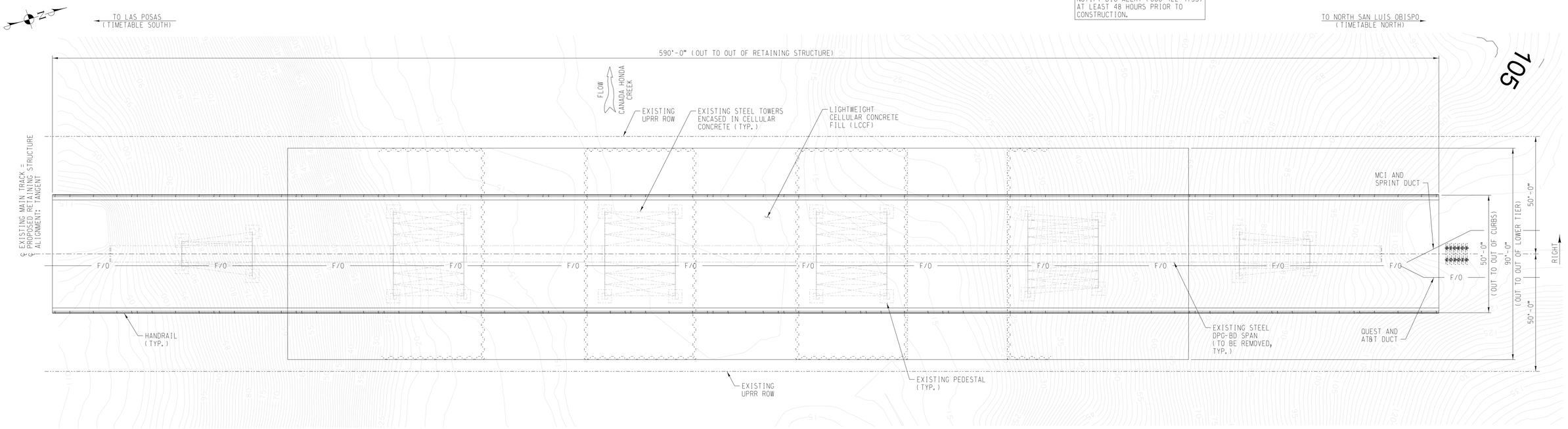
FILE NAME: $$$$$$$$$$$$$$FILE NAME$$$$$$$$$$$$$$

PLOTTED: $$$$DATE$$$$ $TIME

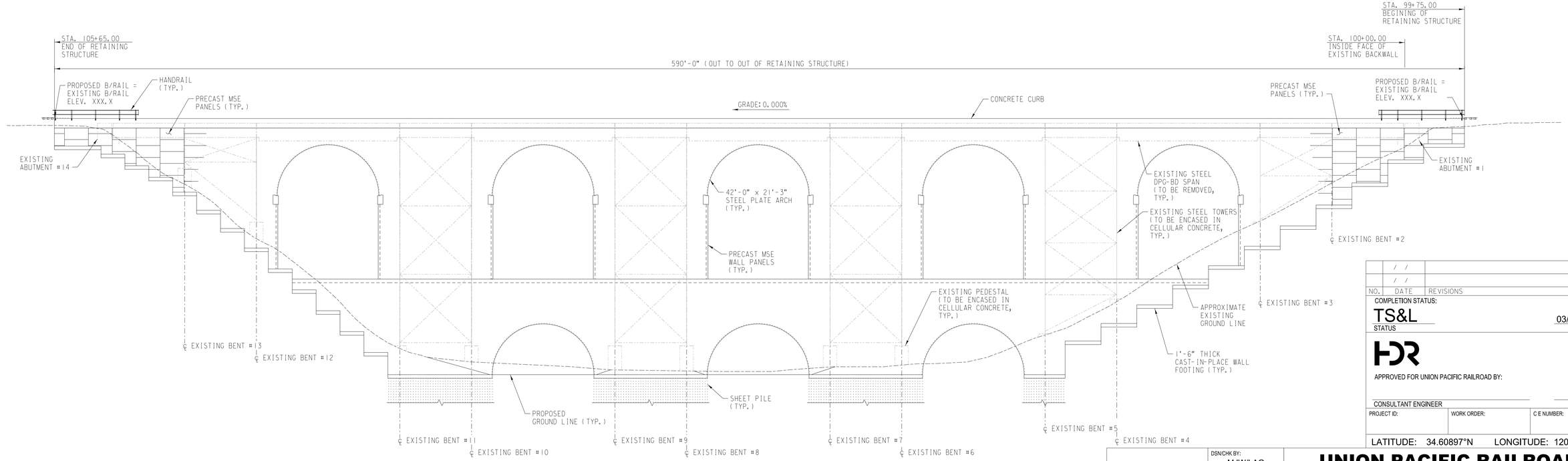
CELLULAR FILL WITH ARCHES

DRAWING SCHEDULE		
THIS SET	SHEET NO.	DESCRIPTION
	S1	GENERAL ARRANGEMENT
	S2	TYPICAL SECTION

NOTE:
LOCATION OF KNOWN UTILITIES IS APPROXIMATE. LOCATION SHALL BE VARIFIED PRIOR TO CONSTRUCTION NOTIFY DIG ALERT (800-422-4133) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.



PLAN
SCALE: 1:20



ELEVATION
SCALE: 1:20

PRELIMINARY
NOT FOR CONSTRUCTION DATE: 03/23/21

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
TS&L — STATUS
03/08/2021 — DATE

APPROVED FOR UNION PACIFIC RAILROAD BY:
CONSULTANT ENGINEER — DATE: / /

PROJECT ID:	WORK ORDER:	C E NUMBER:

LATITUDE: 34.60897°N LONGITUDE: 120.63561°W

DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S1 of S2

UNION PACIFIC RAILROAD
Office of Director Structures Design

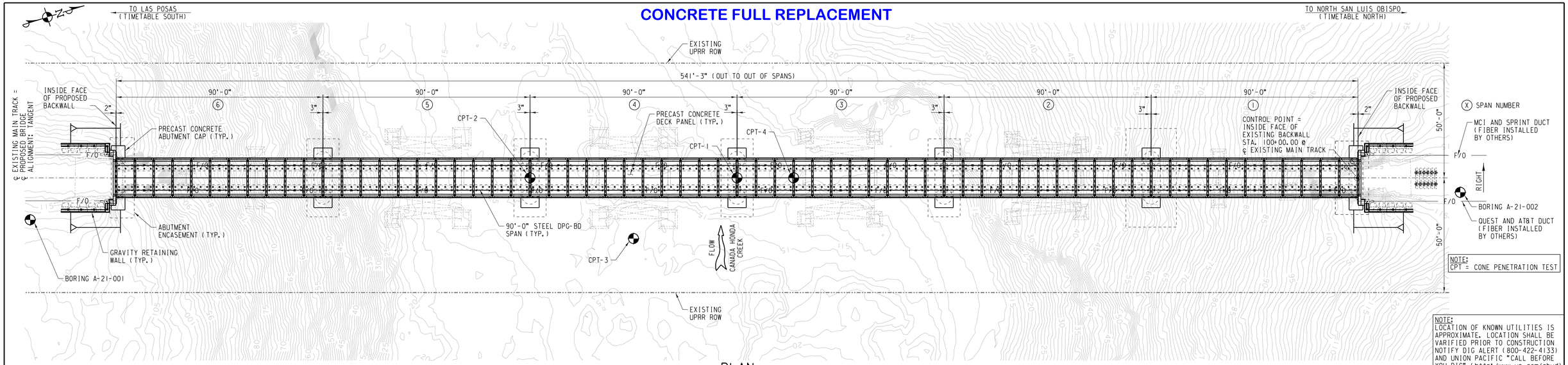
LOCATION & DESCRIPTION:
BRIDGE 304.89, SANTA BARBRA SUB.
CONCEPT #4 - CELLULAR CONCRETE RETAINING STRUCTURE WITH 3-42' ARCH OPENINGS REPLACING EXISTING BRIDGE

SHEET TITLE:
GENERAL ARRANGEMENT

FILE NAME: $$$$$$$$$$$$$$FILE.DWG$$$$$$$$$$$$$$

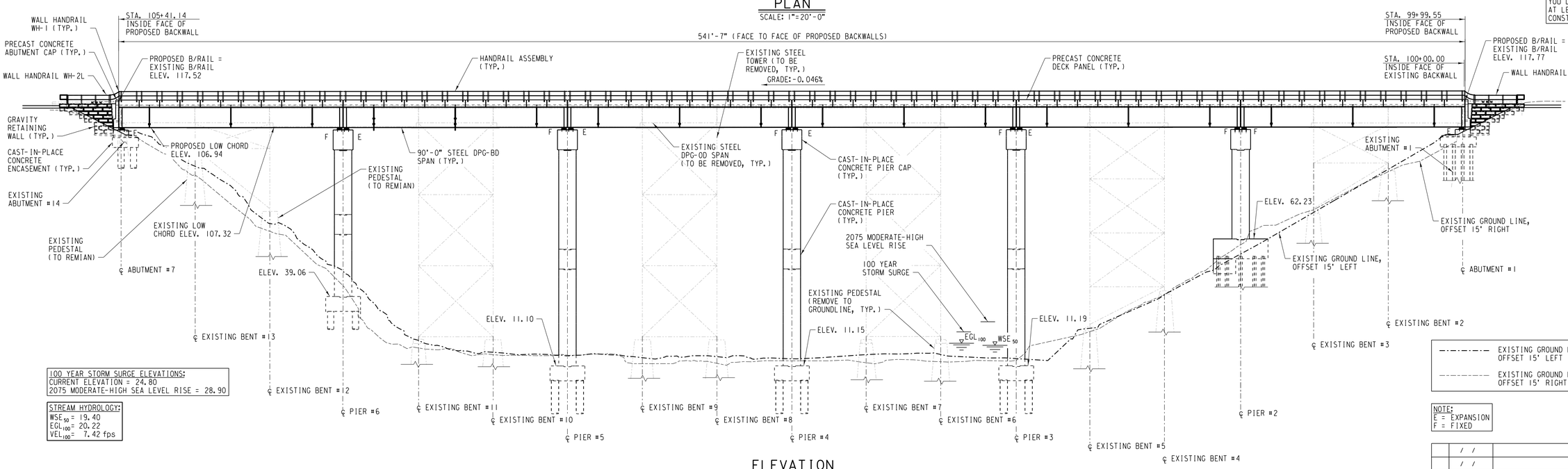
PLOTTED: $$$$DATE$$$ $TIME

CONCRETE FULL REPLACEMENT



NOTE:
LOCATION OF KNOWN UTILITIES IS APPROXIMATE. LOCATION SHALL BE VARIFIED PRIOR TO CONSTRUCTION NOTIFY DIG ALERT (800-422-4133) AND UNION PACIFIC "CALL BEFORE YOU DIG" (http://www.up.com/cbud) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.

PLAN
SCALE: 1"=20'-0"



100 YEAR STORM SURGE ELEVATIONS:
CURRENT ELEVATION = 24.80
2075 MODERATE-HIGH SEA LEVEL RISE = 28.90

STREAM HYDROLOGY:
WSE_{50} = 19.40
EGL_{100} = 20.22
VEL_{100} = 7.42 fps

NOTE:
E = EXPANSION
F = FIXED

ELEVATION
SCALE: 1"=20'-0"

PRELIMINARY
NOT FOR CONSTRUCTION DATE: 06/24/22

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
90% STATUS
06/24/2022 DATE

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

DSN/CHK BY:	LAG/MJW
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S2 of S37

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE:
GENERAL LAYOUT

FILE NAME: pw://HDR.US.National.01/41951100830317/rank30488.bcca.dgn

PLOTTED: 6/24/2022 6:04:50 PM

APPENDIX I. TECHNICAL MEMORANDUM FOR LONG SPAN ALTERNATIVE (HDR 8/25/2023)

Technical Memorandum

Date:	Friday, August 25, 2023
Project:	Union Pacific Railroad Honda Bridge Replacement
To:	California Coastal Commission
From:	HDR
Subject:	Bridge Long Span Alternatives

Introduction

On behalf of Union Pacific Railroad (UP), HDR is providing design for replacement of the existing Bridge 304.88 Santa Barbara Subdivision over Honda Creek “the Honda bridge”. As part of the project development process, UP developed several options for the bridge replacement including some long span alternatives. HDR evaluated the feasibility and estimated cost of each alternative and UP’s construction contractor also developed options for construction and erection methods in an attempt to minimize the temporary and permanent footprint of the project. This memo presents the long span bridge alternatives and evaluation used to select a complete bridge replacement with 6-span steel deck plate girders of 90 feet each and new concrete foundations and substructures as the most desirable alternative.

Selected Bridge Type and Size

Several site constraints limit what can and cannot be done during construction. Care was taken to avoid sensitive cultural resource deposits to the extent possible. Permanent impacts on waters and wetlands were also minimized, but due to the tall height of the existing bridge and very steep slopes of the canyon walls, available construction techniques are limited. In addition, the existing track must stay in service throughout most of the construction period for the new bridge. Therefore, any construction techniques that would require extensive track time or risk interference with operations must be avoided. All of these factors led to the need to work from below the existing bridge within Honda canyon to effectively build the new bridge.

This is true for all types of bridges considered for replacement of the existing including all long span or “freespan” options. When factoring in the time for changing out the old bridge for the new bridge in a very short curfew, in this case outage of the tracks should be limited to two weeks or less, it leads to the option where all foundation and substructure work must be done in advance and then all superstructure work must be done by flying old bridge out and new spans in within the allotted change out window. Lifting weights, crane reach distances, adequate staging area and proper finishes on installation round out a number of other considerations that must be evaluated to make a final decision on bridge span arrangements.

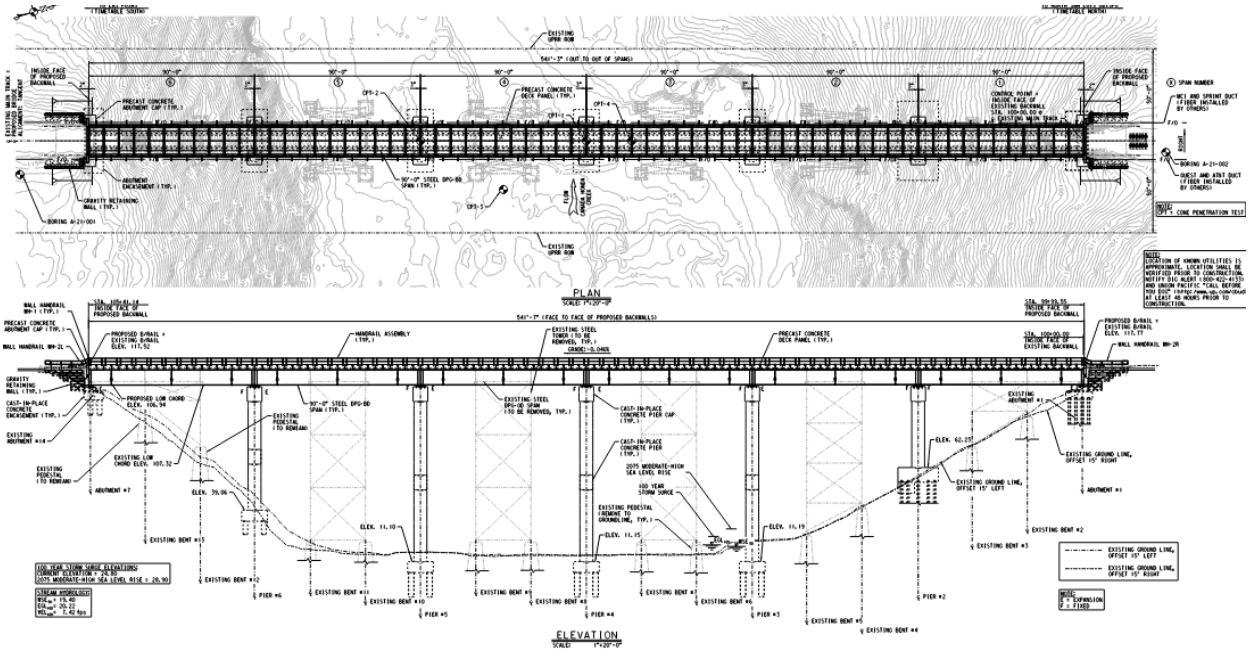


Figure 1 Proposed Bridge 6-Span x 90' DPG-BD = 540 feet Total Length Plan & Elevation

Because no information was available regarding the makeup and capacity of existing bridge foundations, UP was not comfortable with any scenario where existing foundations would be reused and this ruled out replacing in kind with braced towers on the existing pedestals. When looking at new foundation options, the distributed strength and stiffness of multiple tall piers was favorable over fewer piers to resist seismic shaking and liquefaction. Finally, UP also favors span types and lengths that are more readily inspected and maintained by their maintenance forces and welded steel girder spans are much preferred compared to more complex or larger structures such as truss and concrete arch spans.

All of these factors contributed to UP's decision to proceed with 6-span welded steel deck plate girders with concrete deck on new concrete foundations and substructures. In the end, the permanent footprint of the new bridge within waters and wetlands was less than the other long span options considered and the temporary impacts to ESHA are virtually identical.

Conceptual Long Span Alternatives

Three primary options were investigated for long span bridges to replace the existing Honda bridge. All three were evaluated at the concept design stage and considered for constructability by the CM/GC contractor retained by UP during pre-construction. Each option is described below along with a description of the fatal flaws that led UP to discard them from further consideration. Economy must also be considered and all of the long span bridge options came with estimated costs in excess of 20% higher than the selected alternative. Funding risk combined with other risks or fatal flaws aided in UP's decision.

Steel Delta Frame Structure (Option 5)

A steel delta frame is a long span bridge option composed of pre-fabricated steel girders field spliced together to form a continuous frame and features 3 spans with inclined column supports

to reduce moment demands on the longest middle span and equalize those demands to the shorter approach spans.

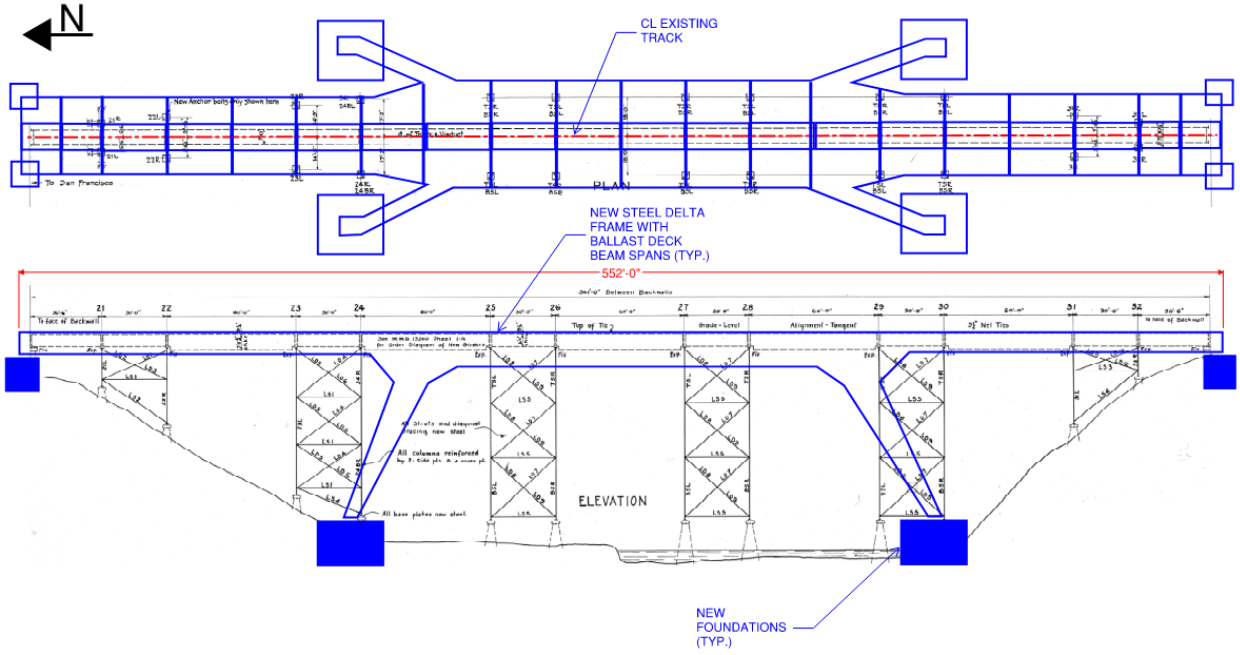


Figure 2 Steel Delta Frame Concept Plan & Elevation

In this application, foundations and primary delta frames would be constructed/erected in place outside the limits of the existing bridge prior to a curfew to take the track out of service in order to remove the existing bridge, install new floor system spans and place the track back into service. Due to the amount of work required during the curfew and working around/near the new delta frames, the construction contractor estimated 5 weeks of curfew time to complete the change-out work.

Steel bridges in this kind of high moisture and high chloride environment require special coatings for longevity, which typically include zinc metallizing or hot dip galvanizing and a duplex paint system over the zinc layer. UP does not have many continuous frame structures in their current inventory and no long span steel delta frames. Therefore, future inspection and maintenance is a concern for this type of structure.

The permanent impacts to waters and wetlands at the site would be about 20% larger than the selected option because of the large size and capacity required for the four large footings needed at the base of the canyon slope. Due to space available on site for staging and erection of the delta frames, the temporary impacts to waters and wetlands would be about the same as the selected option.

Concrete Arch Structure (Option 6)

A concrete arch is a long span bridge option composed of reinforced concrete typically formed and cast-in-place on site and features 3 spans with a number of vertical column supports (spandrels) to support short spans or a continuous slab at the deck level.

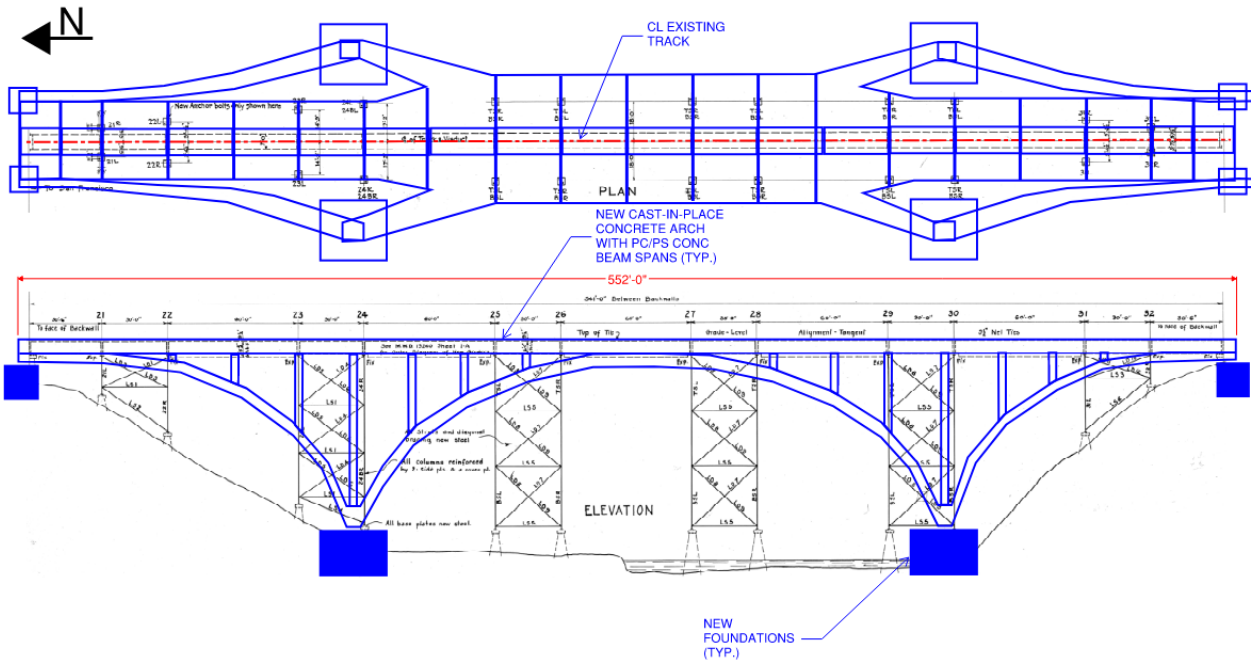


Figure 3 Concrete Arch Bridge Concept Plan & Elevation

In this application, foundations and primary concrete arch structures and spandrels would be constructed in place around and outside the limits of the existing bridge prior to a curfew to take the track out of service in order to remove the existing bridge, install new floor system spans and place the track back into service. Due to the amount of work required during the curfew and working around/near the new arches, the construction contractor estimated 8 weeks of curfew time to complete the change-out work.

Concrete arches can be very elegant and efficient structures for long spans, but special mix designs and other considerations may be necessary to prevent future degradation and corrosion in this kind of high moisture and high chloride environment. UP has very few concrete arches in their current inventory and none of this span and height magnitude. Therefore, future inspection and maintenance is a concern for this type of structure.

The permanent impacts to waters and wetlands at the site would be about 20% larger than the selected option because of the large size and capacity required for the four large footings needed at the base of the canyon slope. Due to considerable operations required for forming and placing concrete for the arches and space needed to stage prefabricated deck spans ahead of the curfew, the temporary impacts to waters and wetlands would be about the same as the selected option.

Single Span Steel Through Truss Structure (Option 7)

A steel through truss is a long span bridge option composed of welded or bolted steel members field spliced together to form a series of triangular panels. This would be a very long single span, although not unprecedented. Spans of this magnitude must be very heavy and large to hold their own weight. Simple span trusses are considered fracture critical because failure of

any one joint or one member could cause complete collapse. Therefore, additional cost and effort must go into detailing internally redundant members and connections to reduce this risk.

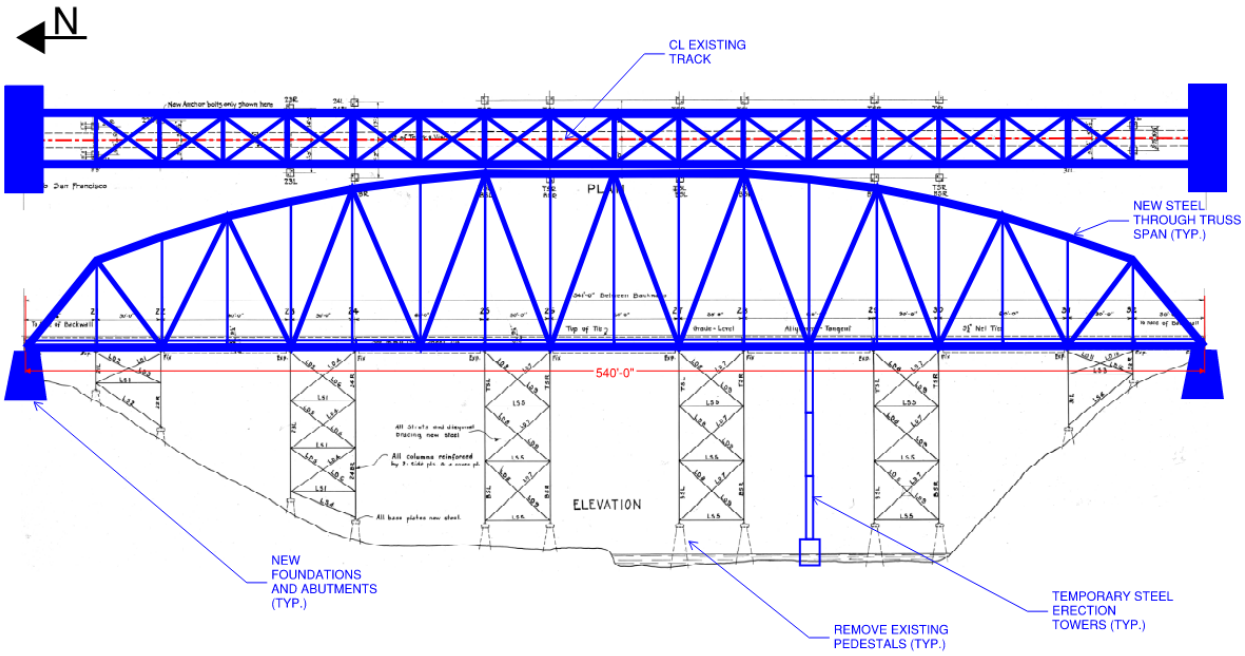


Figure 4 Single Span Steel Through Truss Concept Plan & Elevation

In this application, abutments must support all of the bridge loads, so foundations at each end of the bridge would become very large. It may be possible to construct the foundations and main trusses outside the limits of the existing bridge prior to a curfew to take the track out of service in order to remove the existing bridge, install new floor system and place the track back into service. However, this is a very unusual situation for truss erection and carries higher risk due to contractors' relative inexperience. Due to the amount of work required during the curfew and working around/near the new truss, the construction contractor estimated 8 weeks of curfew time to complete the change-out work.

Steel bridges in this kind of high moisture and high chloride environment require special coatings for longevity, which typically include zinc metallizing or hot dip galvanizing and a duplex paint system over the zinc layer. The field connections required for this type of bridge means that coatings must be applied after erection, which can be very difficult in the environmental conditions at this site (high winds, relative humidity and chlorides) and the height and length of the span itself. UP has several simple span steel through truss bridges throughout their network, but very few trusses are anywhere near this length. Based on UP's own experience with through truss structures, ongoing future inspection and maintenance is a concern for this type of structure.

The permanent impacts to waters and wetlands at the site would be the smallest of any alternative considered because the span would not have any permanent structure within the canyon bottom. However, the construction activities required to stage and erect the large trusses would require nearly identical temporary impacts to waters and wetlands as the selected

option. In addition, because the abutment foundations would be so large, there is much more risk of significant cultural resources impacts in order to provide the necessary construction footprint near sensitive sites. These factors, along with very high costs for such a long and heavy span make spanning the entire canyon infeasible.

Evaluation Table

All options considered for replacement of the existing bridge are summarized in the evaluation matrix shown below. Each option was evaluated on six criteria including cost, longevity, quality, maintenance, construction schedule and environmental impacts. All three long span options have fatal flaws that make them infeasible to consider further.

See Table 1 for detailed ranking of alternatives and additional explanation of fatal flaws and commentary on the decision to proceed with the complete bridge replacement in-line with existing using 6 spans of 90 feet each.

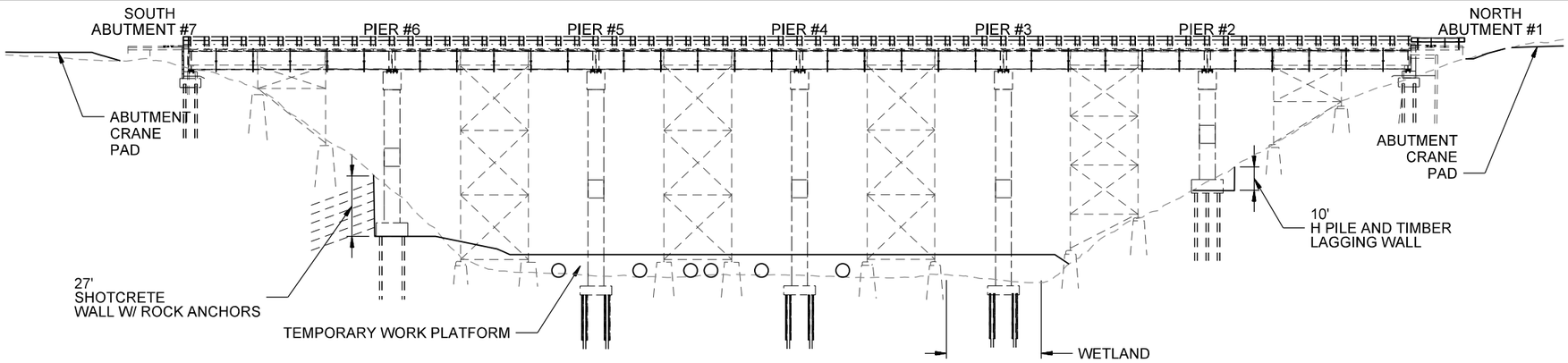
Conclusions

Based on the evaluation of alternatives at the conceptual level, no long span or “freespan” alternatives were considered further for this bridge replacement project. Option 2 for New Bridge In-Line Replacement with 6 steel welded girder spans of 90 feet each for a total length of 540 feet was selected. The selected alternative clearly meets the project goals with the least risk and reduces environmental impacts to the extent possible.

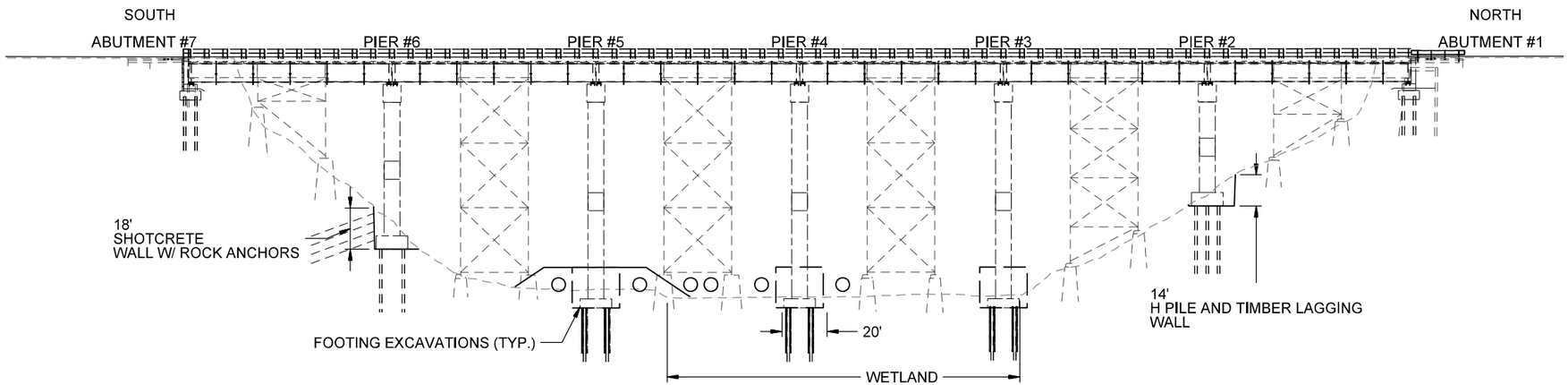
Table 1 Concept Bridge Evaluation Matrix – Ranking 5 (best) to 1 (worst) on six criteria

Option	1	2	3	4	5	6	7
Short Description	**Replace In-Kind on Existing Pedestals Total length 540 feet Alternating spans of 30 feet with steel braced towers and 60 feet between**	**New Bridge In-line Replacement Total length 540 feet 6-Spans Steel DPG 90 feet each**	**New Bridge Offline Replace-ment Total length 540 feet 6-Spans Steel DPG 90 feet each**	**Lighweight Cellular Concrete Fill with Arch Openings 3 Openings Span 42 feet Rise 28 feet**	**Long Span – Steel Delta Frame Total length 552 feet Main span 270 feet**	**Long Span – Concrete Arch Total length 552 feet Main span 270 feet**	**Long Span – Single Span Steel Through Truss 540 feet**
Cost	5	4	3	3	2	2	1
Longevity	1	4	4	3	4	5	4
Quality	1	5	5	3	5	5	5
Maintenance	2	4	4	5	3	2	2
Construction Schedule	5	4	5	4	2	1	1
Environ-mental Impacts	4	4	1	1	4	4	4
AVERAGE SCORE	3.00	4.16	3.66	3.16	3.33	3.16	2.83
Fatal Flaws	-Unknown existing foundations -Uncertain resiliency to flooding and future SLR	-None	-Significant cultural resource impacts -Property acquisition required from Federal government	-Significant permanent impacts to waters and wetlands -Uncertain resiliency to flooding and future SLR	-Estimated curfew time of 5 weeks is too long -Permanent impacts to waters and wetlands greater than Option 2 -Excessive cost	-Estimated curfew time of 8 weeks is too long -Permanent impacts to waters and wetlands greater than Option 2 -Excessive cost	-Estimated curfew time of 8 weeks is too long -Fracture-critical construction in high chloride environment -Excessive cost
Commentary	Too much risk with unknown existing foundations and undesirable future maintenance	Selected alternative	Risks and impacts outweigh benefits to railroad operations	Risks and impacts outweigh reduced future maintenance benefits	Excessive cost and curfew time Structure type not preferred by Railroad for future inspection and maintenance	Excessive cost and curfew time Structure type not preferred by Railroad for future inspection and maintenance	Excessive cost and curfew time Construction risk from uncertain erection methods Wrong environment for this type of bridge

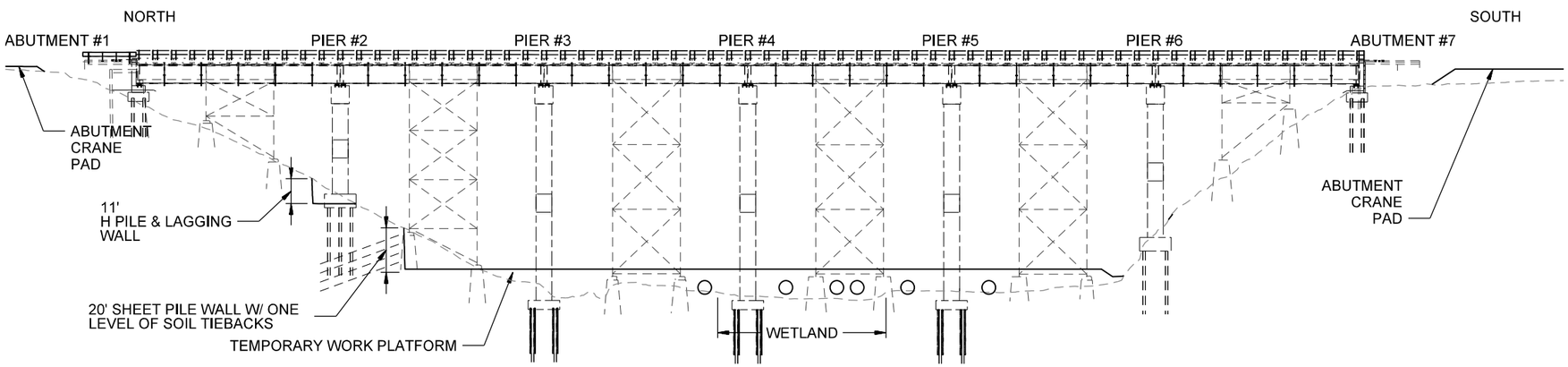
APPENDIX J. CROSS-SECTIONS (HDR 1/5/2022)



SECTION A - LANDSIDE WORK PLAFTORMS @ 30' OFFSET FROM TRACK CL



SECTION B - STRUCTURAL EXCAVATIONS @ TRACK CL



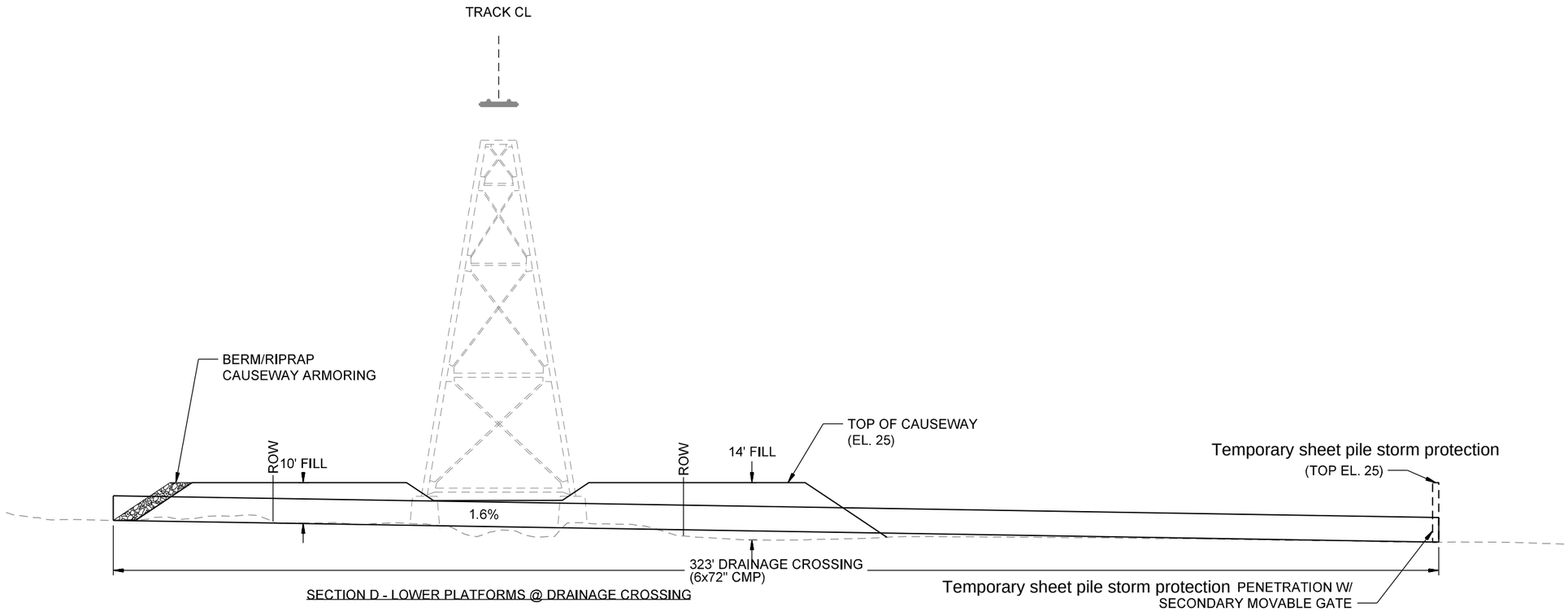
SECTION C - OCEANSIDE WORK PLAFTORMS @ 30' OFFSET FROM TRACK CL

NOTES:
GRADE LINES REPRESENT TOP FINISHED SURFACE.
ALL WORKING SURFACES AND ACCESS ROADS STABILIZED W/ 6" GRAVEL BASE AND GEOTEXTILE SEPARATION LAYER

VANDENBERG SPACE FORCE BASE, CA
SANTA BARBARA COUNTY
BRIDGE 304.89 - SANTA BARBARA SUBDIVISION

CROSS SECTIONS - 1
1" = 60'

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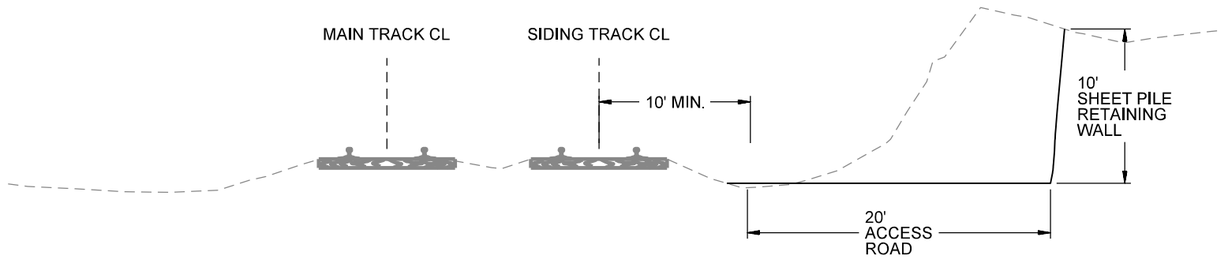
SECTION D - LOWER PLATFORMS @ DRAINAGE CROSSING

NOTES:
GRADE LINES REPRESENT TOP FINISHED SURFACE.
ALL WORKING SURFACES AND ACCESS ROADS STABILIZED W/ 6" GRAVEL BASE AND GEOTEXTILE SEPARATION LAYER

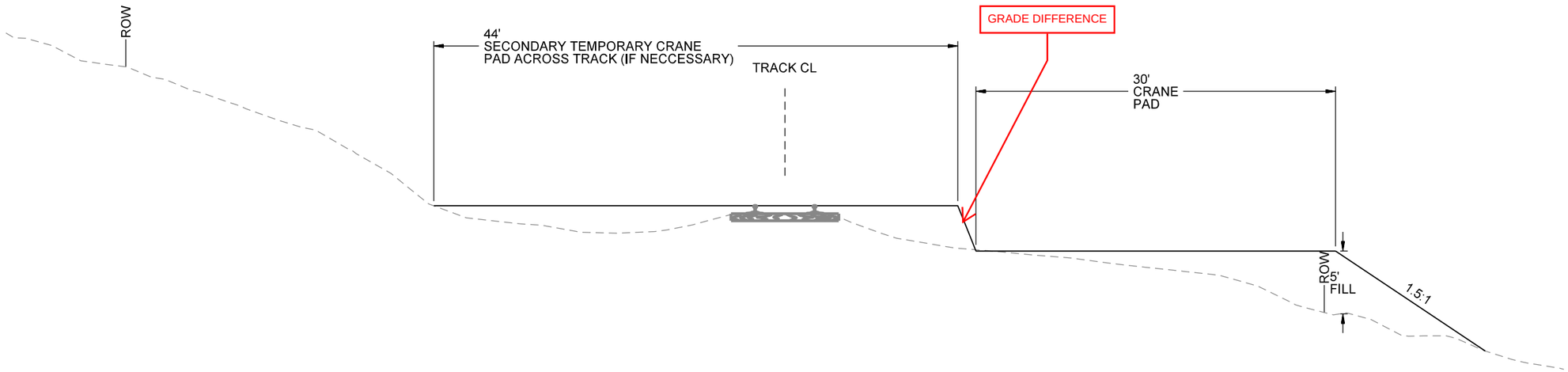
VANDENBERG SPACE FORCE BASE, CA
SANTA BARBARA COUNTY
BRIDGE 304.89 - SANTA BARBARA SUBDIVISION

CROSS SECTIONS - 2
1" = 30'

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SECTION G - NORTH ABUTMENT ACCESS ROAD



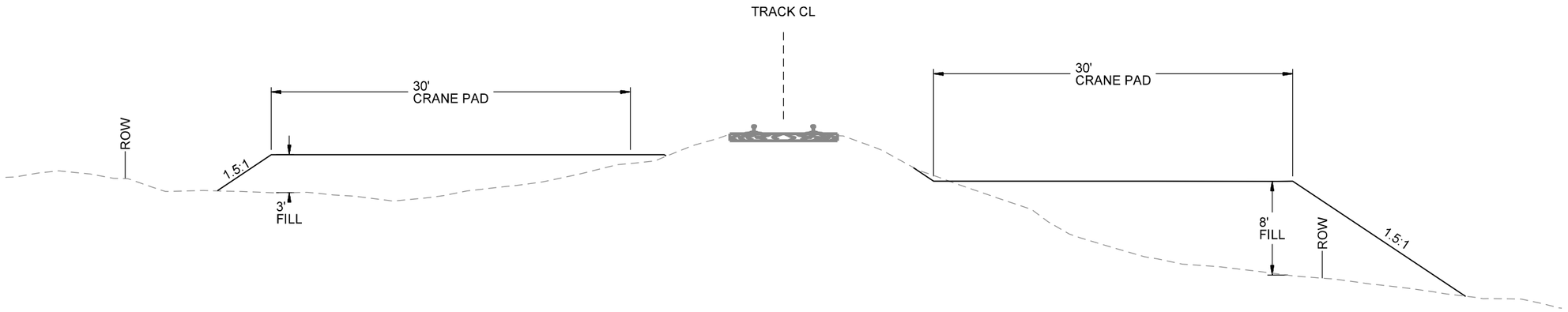
SECTION H - NORTH ABUTMENT CRANE PADS

NOTES:
GRADE LINES REPRESENT TOP FINISHED SURFACE.
ALL WORKING SURFACES AND ACCESS ROADS STABILIZED W/ 6" GRAVEL BASE AND GEOTEXTILE SEPARATION LAYER

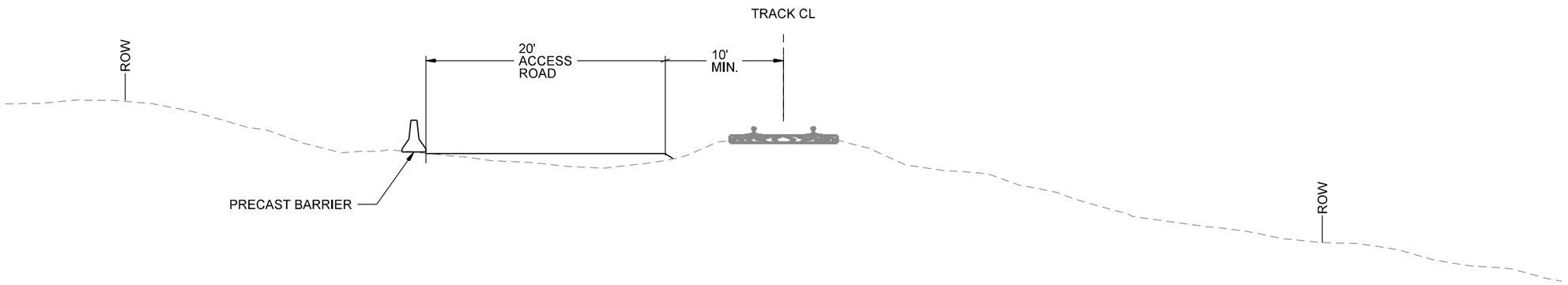
VANDENBERG SPACE FORCE BASE, CA
SANTA BARBARA COUNTY
BRIDGE 304.89 - SANTA BARBARA SUBDIVISION

CROSS SECTIONS - 4
1" = 10'

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SECTION I - SOUTH ABUTMENT CRANE PADS



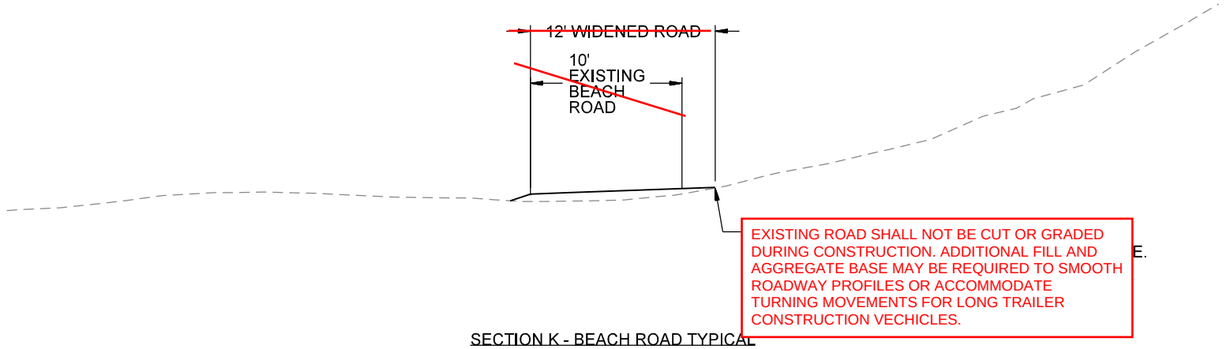
SECTION J - SOUTH ABUTMENT ACCESS ROAD

NOTES:
GRADE LINES REPRESENT TOP FINISHED SURFACE.
ALL WORKING SURFACES AND ACCESS ROADS STABILIZED W/ 6" GRAVEL BASE AND GEOTEXTILE SEPARATION LAYER

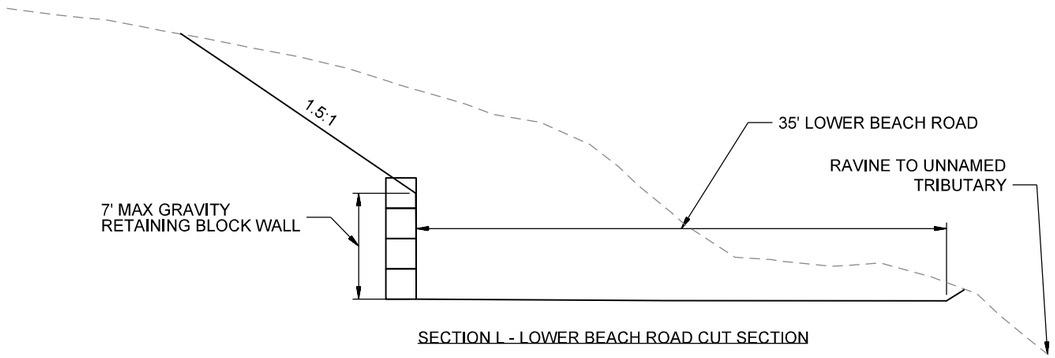
VANDENBERG SPACE FORCE BASE, CA
SANTA BARBARA COUNTY
BRIDGE 304.89 - SANTA BARBARA SUBDIVISION

CROSS SECTIONS - 5
1" = 10'

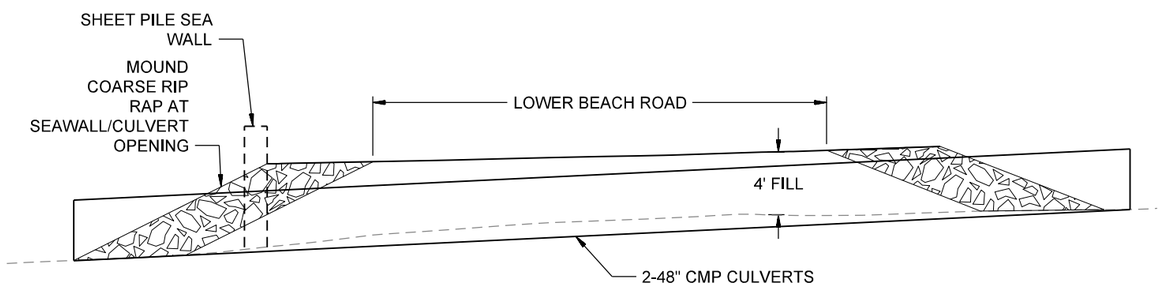
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SECTION K - BEACH ROAD TYPICAL



SECTION L - LOWER BEACH ROAD CUT SECTION



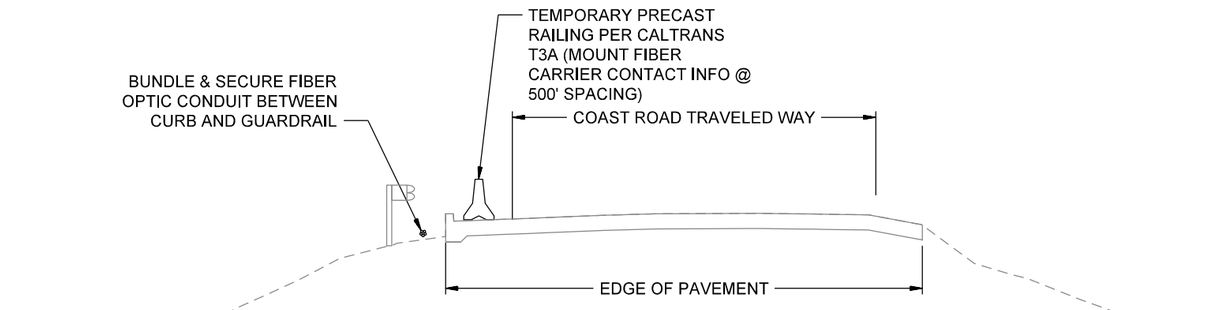
SECTION M - LOWER BEACH ROAD UNNAMED TRIBUTARY CROSSING

NOTES:
GRADE LINES REPRESENT TOP FINISHED SURFACE.
ALL WORKING SURFACES AND ACCESS ROADS STABILIZED W/ 6" GRAVEL BASE AND GEOTEXTILE SEPARATION LAYER

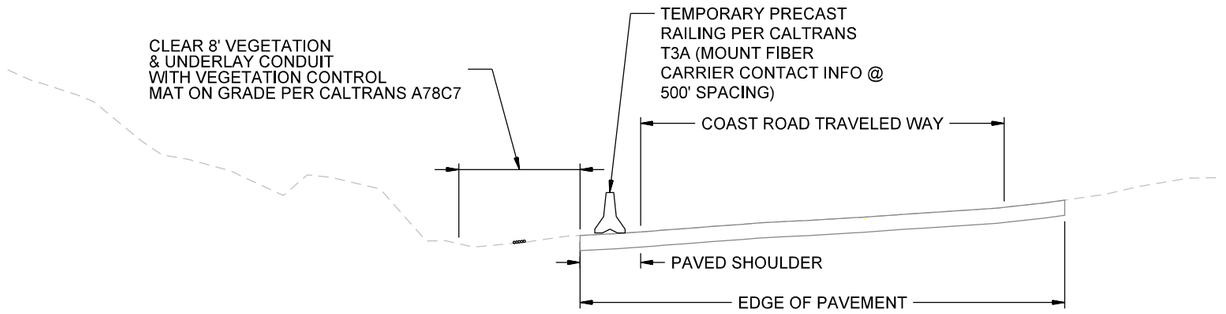
VANDENBERG SPACE FORCE BASE, CA
SANTA BARBARA COUNTY
BRIDGE 304.89 - SANTA BARBARA SUBDIVISION

CROSS SECTIONS - 6
1" = 10'

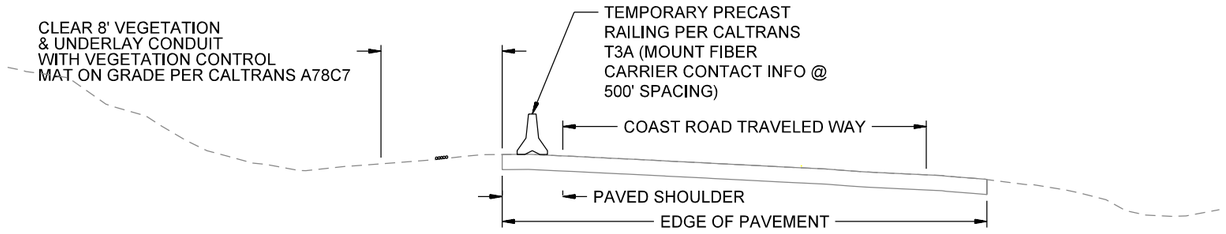
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SECTION N - COAST ROAD TEMPORARY FIBER RELOCATION @ HONDA CANYON



SECTION O - COAST ROAD TEMPORARY FIBER RELOCATION



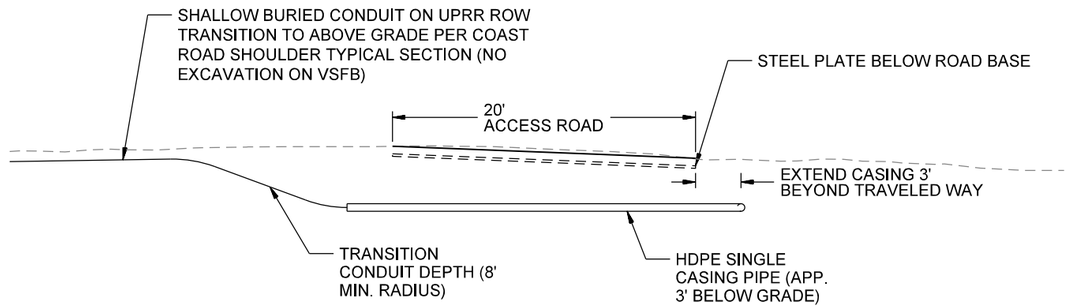
SECTION P - COAST ROAD TEMPORARY FIBER RELOCATION

NOTES:
GRADE LINES REPRESENT TOP FINISHED SURFACE.
ALL WORKING SURFACES AND ACCESS ROADS STABILIZED W/ 6" GRAVEL BASE AND GEOTEXTILE SEPARATION LAYER

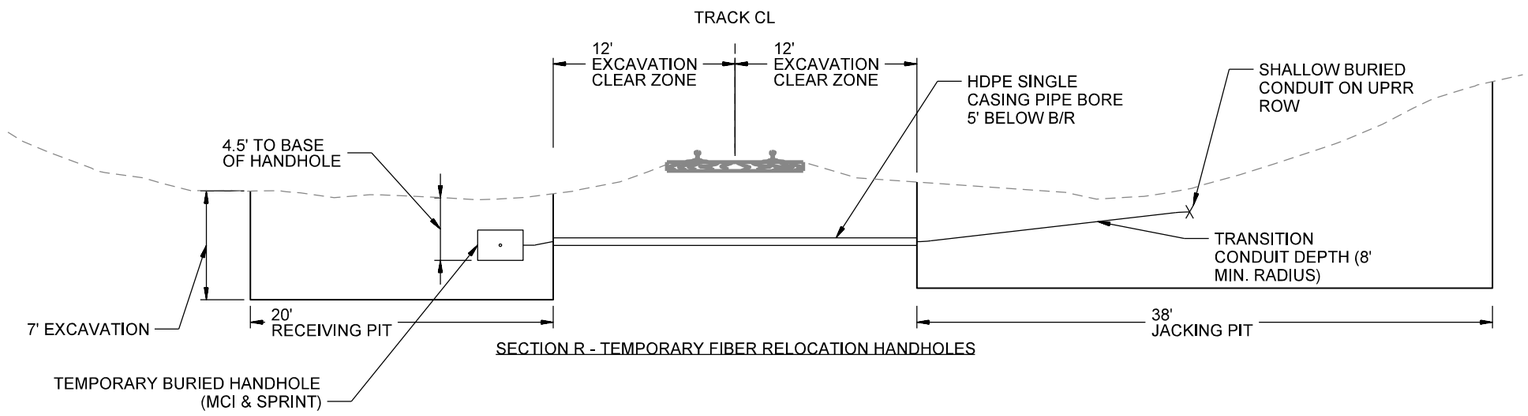
VANDENBERG SPACE FORCE BASE, CA
SANTA BARBARA COUNTY
BRIDGE 304.89 - SANTA BARBARA SUBDIVISION

CROSS SECTIONS - 7
1" = 10'

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1/5/2022 12:21:46 PM



SECTION Q - COAST ROAD TEMPORARY FIBER RELOCATION @ DRIVEWAY CROSSINGTYPICAL



SECTION R - TEMPORARY FIBER RELOCATION HANDHOLES

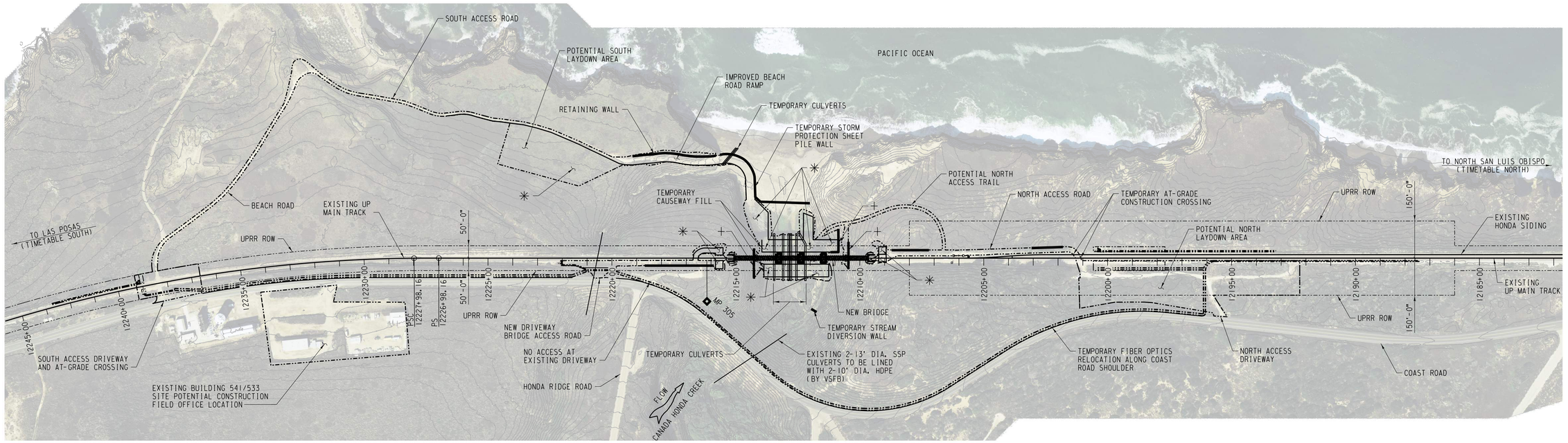
NOTES:
GRADE LINES REPRESENT TOP FINISHED SURFACE.
ALL WORKING SURFACES AND ACCESS ROADS STABILIZED W/ 6" GRAVEL BASE AND GEOTEXTILE SEPARATION LAYER

VANDENBERG SPACE FORCE BASE, CA
SANTA BARBARA COUNTY
BRIDGE 304.89 - SANTA BARBARA SUBDIVISION

CROSS SECTIONS - 8
1" = 10'

Color table: \\contsrv1\ECGCADStandards\UPRRTR\Tables\Color\UPRR.tbl
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APPENDIX K. BRIDGE PLANS (HDR 4/20/2023)



SITE PLAN

SCALE: 1"=200'-0"

100 0 100 200

SCALE IN FEET

LEGEND:

✳ = POTENTIAL CRANE PAD LOCATIONS

\+ = TEMPORARY SHORING FOR EXCAVATION

·····-·····-····· = WORKING AREAS

DRAWING SCHEDULE

THIS SET

SHEET NO.	DESCRIPTION
S1	SITE PLAN
S2	GENERAL LAYOUT
S3	GENERAL ARRANGEMENT (SHEET 1 OF 2)
S4	GENERAL ARRANGEMENT (SHEET 2 OF 2)
S5	GENERAL NOTES (SHEET 1 OF 4)
S6	GENERAL NOTES (SHEET 2 OF 4)
S7	GENERAL NOTES (SHEET 3 OF 4)
S8	GENERAL NOTES (SHEET 4 OF 4) AND BILL OF MATERIAL
S9	TYPICAL SECTIONS AND DETAILS (SHEET 1 OF 2)
S10	TYPICAL SECTIONS AND DETAILS (SHEET 2 OF 2)
S11	SUBSURFACE INFORMATION (SHEET 1 OF 4)
S12	SUBSURFACE INFORMATION (SHEET 2 OF 4)
S13	SUBSURFACE INFORMATION (SHEET 3 OF 4)
S14	SUBSURFACE INFORMATION (SHEET 4 OF 4)
S15	FOUNDATION PLAN
S16	FOUNDATION DETAILS
S17	RETAINING WALL CONSTRUCTION DETAILS (SHEET 1 OF 2)

THIS SET

SHEET NO.	DESCRIPTION
S18	RETAINING WALL CONSTRUCTION DETAILS (SHEET 2 OF 2)
S19	CONSTRUCTION DETAILS
S20	ABUTMENT #1 DETAILS (SHEET 1 OF 3)
S21	ABUTMENT #1 DETAILS (SHEET 2 OF 3)
S22	ABUTMENT #1 DETAILS (SHEET 3 OF 3)
S23	ABUTMENT #7 DETAILS (SHEET 1 OF 3)
S24	ABUTMENT #7 DETAILS (SHEET 2 OF 3)
S25	ABUTMENT #7 DETAILS (SHEET 3 OF 3)
S26	CAST-IN-PLACE CONCRETE PIER #2 DETAILS (SHEET 1 OF 3)
S27	CAST-IN-PLACE CONCRETE PIER #2 DETAILS (SHEET 2 OF 3)
S28	CAST-IN-PLACE CONCRETE PIER #2 DETAILS (SHEET 3 OF 3)
S29	CAST-IN-PLACE CONCRETE PIER #3, #4, AND #5 DETAILS (SHEET 1 OF 2)
S30	CAST-IN-PLACE CONCRETE PIER #3, #4, AND #5 DETAILS (SHEET 2 OF 2)
S31	CAST-IN-PLACE CONCRETE PIER #6 DETAILS (SHEET 1 OF 2)
S32	CAST-IN-PLACE CONCRETE PIER #6 DETAILS (SHEET 2 OF 2)
S33	CAST-IN-PLACE CONCRETE PIER CAP DETAILS
S34	CAST-IN-PLACE CONCRETE PIER STRUT DETAILS

THIS SET

SHEET NO.	DESCRIPTION
S35	PRECAST CONCRETE DECK PANEL LAYOUT
S36	WATERPROOFING AND DECK DRAINAGE DETAILS
S37	DECK DRAINAGE AND UTILITY SUPPORT DETAILS
P1	PRECAST CONCRETE ABUTMENT SEAT
P2	PRECAST CONCRETE ABUTMENT BACKWALL
P3	PRECAST CONCRETE DECK PANEL DETAILS (1 OF 2)
P4	PRECAST CONCRETE DECK PANEL DETAILS (2 OF 2)
F1	90' DPG SPAN FRAMING DETAILS
F2	90' DPG SPAN TYPICAL DETAILS
F3	90' DPG SPAN BRACING DETAILS (SHEET 1 OF 2)
F4	90' DPG SPAN BRACING DETAILS (SHEET 2 OF 2)
F5	90' DPG SPAN BEARING DETAILS (SHEET 1 OF 2)
F6	90' DPG SPAN BEARING DETAILS (SHEET 2 OF 2)
M1	MISCELLANEOUS STEEL DETAILS (SHEET 1 OF 2)
M2	MISCELLANEOUS STEEL DETAILS (SHEET 2 OF 2)

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL — STATUS — 04/20/2023 DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:

Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

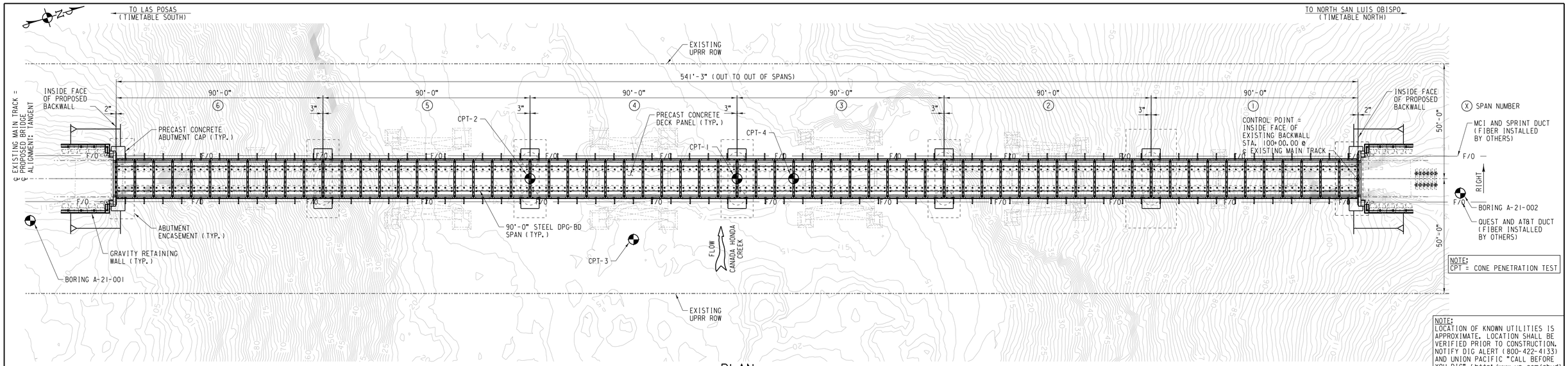
LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY: NPD/LAG	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/NPD	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: S1 of S37	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: SITE PLAN

FILE NAME: pw:/HDR_US_National.01/41951105303?/ent304RB_bca.dgn

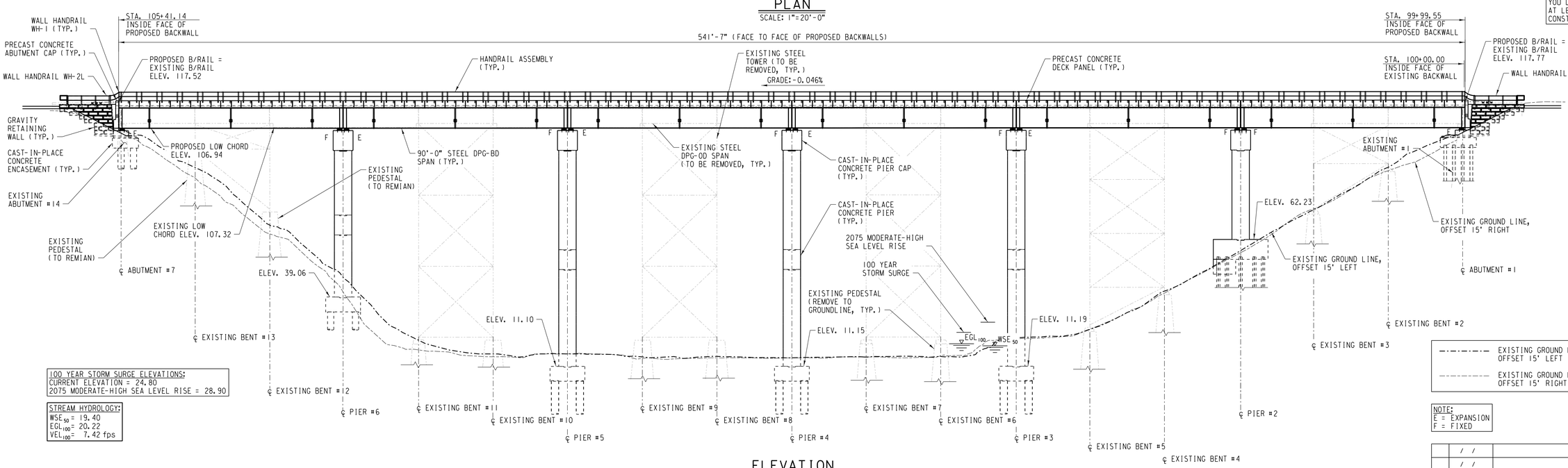
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NOTE:
CPT = CONE PENETRATION TEST

NOTE:
LOCATION OF KNOWN UTILITIES IS APPROXIMATE. LOCATION SHALL BE VERIFIED PRIOR TO CONSTRUCTION. NOTIFY DIG ALERT (800-422-4133) AND UNION PACIFIC "CALL BEFORE YOU DIG" (http://www.up.com/cbud) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.

PLAN
SCALE: 1"=20'-0"



100 YEAR STORM SURGE ELEVATIONS:
CURRENT ELEVATION = 24.80
2075 MODERATE-HIGH SEA LEVEL RISE = 28.90

STREAM HYDROLOGY:
WSE_{50} = 19.40
EGL_{100} = 20.22
VEL_{100} = 7.42 fps

ELEVATION
SCALE: 1"=20'-0"

EXISTING GROUND LINE, OFFSET 15' LEFT
EXISTING GROUND LINE, OFFSET 15' RIGHT

NOTE:
E = EXPANSION
F = FIXED

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

Nathan P. Dickerson 4-20-23
REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

DSN/CHK BY:	LAG/MJW
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S2 of S37

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 304.88, SANTA BARBARA SUB
6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE:
GENERAL LAYOUT

FILE NAME: pw://HDR.US.National.01/41951100530317/wrk30488.bcda.dgn

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TO LAS POSAS
(TIMETABLE SOUTH)

TO NORTH SAN LUIS OBISPO
(TIMETABLE NORTH)

EXISTING
UPRR ROW

MCI & SPRINT DUCT
(FIBER INSTALLED
BY OTHERS)

541'-3"(OUT TO OUT OF SPANS)

90'-0"

90'-0"

90'-0"

2"

3"

3"

B
39

A
39

6

5

4

X SPAN NUMBER

HANDRAIL ASSEMBLY
(TYP.)

LIFTING LUG
(TYP.)

PRECAST CONCRETE
ABUTMENT CAP (TYP.)

UTILITY HANGER
UHI-M (TYP.)

CPT-2

90'-0" STEEL
DPG-BD SPAN
(TYP.)

DECK PLATE
(TYP.)

PRECAST CONCRETE
DECK PANEL (TYP.)

℄ EXISTING MAIN TRACK =
℄ PROPOSED BRIDGE
ALIGNMENT: TANGENT

F/O

50'-0"

RIGHT

50'-0"

MATCHLINE - SEE SHEET NO. S4

CAST-IN-PLACE
CONCRETE
ENCASEMENT

DECK HOLD DOWN
(TYP.)

DECK DRAIN
(TYP.)

EXISTING STEEL
TOWER (TYP.)

EXISTING
PEDESTAL (TYP.)

FLOW

CANADA HONDA
CREEK

BORING
A-21-001

CPT-3

QUEST AND AT&T DUCT
(FIBER INSTALLED
BY OTHERS)

GRAVITY
RETAINING WALL
(TYP.)

EXISTING
UPRR ROW

NOTE:
LOCATION OF KNOWN UTILITIES IS APPROXIMATE. LOCATION SHALL BE VERIFIED PRIOR TO CONSTRUCTION. NOTIFY DIG ALERT (800-422-4133) AND UNION PACIFIC "CALL BEFORE YOU DIG" (http://www.up.com/cbud) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.

NOTE:
CPT = CONE PENETRATION TEST

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

STA. 105+41.14
INSIDE FACE OF
PROPOSED BACKWALL

541'-7" (FACE TO FACE OF PROPOSED BACKWALLS)

PROPOSED B/RAIL =
EXISTING B/RAIL
ELEV. 117.52

HANDRAIL ASSEMBLY
(TYP.)

GRADE: -0.046%

DOWNSPOUT
(TYP.)

PRECAST CONCRETE
DECK PANEL (TYP.)

GRAVITY
RETAINING WALL

PRECAST CONCRETE
ABUTMENT CAP

CAST-IN-PLACE
CONCRETE
ENCASEMENT

EXISTING
ABUTMENT #14

30" DIA. ROCK SOCKET
(TYP., ABUTMENT #7)

℄ ABUTMENT #7

EXISTING
GROUND LINE
15' OFFSET RIGHT

EXISTING
GROUND LINE
15' OFFSET LEFT

PROPOSED LOW CHORD
ELEV. 106.94

EXISTING LOW CHORD
ELEV. 107.32

EXISTING PEDESTAL
TO REMAIN

℄ EXISTING BENT #13

F

E

CAST-IN-PLACE
CONCRETE PIER
CAP (TYP.)

90'-0" STEEL DPG-BD
SPAN (TYP.)

F

E

EXISTING PEDESTAL
TO REMAIN

7'-0" DIA.
CAST-IN-PLACE
CONCRETE COLUMN
(TYP.)

CAST-IN-PLACE
CONCRETE STRUT
(TYP.)

EXISTING STEEL
TOWER (TO BE
REMOVED, TYP.)

MATCHLINE - SEE SHEET NO. S4

EXISTING GROUND LINE,
OFFSET 15' LEFT

EXISTING GROUND LINE,
OFFSET 15' RIGHT

100 YEAR STORM SURGE ELEVATIONS:
CURRENT ELEVATION = 24.80
2075 MODERATE-HIGH SEA LEVEL RISE = 28.90

STREAM HYDROLOGY:
WSE_{50} = 19.40
EGL_{100} = 20.22
VEL_{100} = 7.42

ELEV. 39.06

℄ EXISTING BENT #12

CAST-IN-PLACE
CONCRETE PILE
CAP (TYP.)

100 YEAR
STORM SURGE

2075 MODERATE-HIGH
SEA LEVEL RISE

30" DIA. ROCK SOCKET
(TYP., PIER #6)

EXISTING PEDESTAL
(REMOVE TO GROUND
LINE, TYP.)

ELEV. 11.10

EGL_{100} WSE_{50}

℄ PIER #6

℄ EXISTING BENT #11

℄ EXISTING BENT #10

℄ EXISTING BENT #9

36" DIA. CONCRETE
FILLED STEEL PIPE
w/ 30" DIA. ROCK SOCKETS
(TYP., PIERS #3, #4 AND #5)

℄ PIER #5

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

EST. LIFTING WEIGHTS

90'-0" DPG SPAN, ASSEMBLED STEEL ONLY = 129,235 LB. (64.6 TON)
PRECAST CONCRETE ABUTMENT CAP = 82,800 LB. (41.4 TON)
PRECAST CONCRETE ABUTMENT BACKWALL = 51,695 LB. (25.9 TON)
PRECAST CONCRETE DECK PANEL = 22,300 LB. (11.2 TON)

NOTE:
E = EXPANSION
F = FIXED

LETTER SERIES
SHEET NO. CUT ON
SHEET NO. SHOWN ON

SECTION DESIGNATION

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
CONSULTANT ENGINEER — 04/20/2023 DATE

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY: LAG/MJW	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/MJW	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: S3 of S37	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: GENERAL ARRANGEMENT (SHEET 1 OF 2)

FILE NAME: pw://HDR_US_National_DU:41395/10263027/wrk30488_bca.dgn

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TO LAS POSAS (TIMETABLE SOUTH)

TO NORTH SAN LUIS OBISPO (TIMETABLE NORTH)

EXISTING UPRR ROW

(X) SPAN NUMBER

541'-3" (OUT TO OUT OF SPANS)

90'-0" ④ | 90'-0" ③ | 90'-0" ② | 90'-0" ①

MCI & SPRINT DUCT (FIBER INSTALLED BY OTHERS)

MATCHLINE - SEE SHEET NO. S3

CPT-1 | CPT-4 | CPT-3

HANDRAIL ASSEMBLY (TYP.)

LIFTING LUG (TYP.)

UTILITY HANGER UHI-M (TYP.)

90'-0" STEEL DPG-BD SPAN (TYP.)

DECK PLATE (TYP.)

PRECAST CONCRETE DECK PANEL (TYP.)

PRECAST CONCRETE ABUTMENT CAP

C 410 | D 410

F/O | 3" | 2"

50'-0"

℄ EXISTING MAIN TRACK = ℄ PROPOSED BRIDGE ALIGNMENT: TANGENT

RIGHT

FLOW CANADA HONDA CREEK

DECK HOLD DOWN (TYP.)

EXISTING STEEL TOWER (TYP.)

EXISTING PEDESTAL (TYP.)

DECK DRAIN (TYP.)

NOTE:
CPT = CONE PENETRATION TEST

NOTE:
LOCATION OF KNOWN UTILITIES IS APPROXIMATE. LOCATION SHALL BE VERIFIED PRIOR TO CONSTRUCTION. NOTIFY DIG ALERT (800-422-4133) AND UNION PACIFIC "CALL BEFORE YOU DIG" (http://www.up.com/cbud) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.

CAST-IN-PLACE CONCRETE ENCASEMENT

QUEST AND AT&T DUCT (FIBER INSTALLED BY OTHERS)

GRAVITY RETAINING WALL (TYP.)

EXISTING UPRR ROW

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

541'-7" (FACE TO FACE OF PROPOSED BACKWALLS)

STA. 99+99.55 INSIDE FACE OF PROPOSED BACKWALL

STA. 100+00.00 INSIDE FACE OF EXISTING BACKWALL

PROPOSED B/RAIL = EXISTING B/RAIL ELEV. 117.77

HANDRAIL ASSEMBLY (TYP.)

DOWNSPOUT (TYP.)

GRADE: -0.046%

PRECAST CONCRETE DECK PANEL (TYP.)

GRAVITY RETAINING WALL

F | E

90'-0" STEEL DPG-BD SPAN (TYP.)

CAST-IN-PLACE CONCRETE PIER CAP (TYP.)

HP14x117 STEEL PILE (TYP., ABUTMENT #1)

PRECAST CONCRETE ABUTMENT CAP

CAST-IN-PLACE CONCRETE ENCASEMENT

7'-0" DIA. CAST-IN-PLACE CONCRETE COLUMN (TYP.)

EXISTING STEEL TOWER (TO BE REMOVED, TYP.)

EXISTING ABUTMENT #1

℄ ABUTMENT #1

℄ EXISTING BENT #2

ELEV. 62.23

CAST-IN-PLACE CONCRETE STRUT (TYP.)

APRON WALL

EXISTING GROUND LINE 15' OFFSET RIGHT

EXISTING GROUND LINE 15' OFFSET LEFT

HP16x162 STEEL PILE (TYP., PIER #2)

NOTE:
E = EXPANSION
F = FIXED

2075 MODERATE-HIGH SEA LEVEL RISE ELEV. 28.90

100 YEAR STORM SURGE ELEV. 24.80

EGL100 | WSE50

ELEV. 11.19

EXISTING PEDESTAL (REMOVE TO GROUND LINE, TYP.)

CAST-IN-PLACE CONCRETE PILE CAP (TYP.)

ELEV. 11.15

36" DIA. CONCRETE FILLED STEEL PIPE w/ 30" ROCK SOCKETS (TYP., PIERS #3, #4 AND #5)

℄ EXISTING BENT #8 | ℄ EXISTING BENT #7 | ℄ EXISTING BENT #6 | ℄ EXISTING BENT #5 | ℄ EXISTING BENT #4

℄ PIER #4 | ℄ PIER #3 | ℄ PIER #2 | ℄ EXISTING BENT #3

EXISTING GROUND LINE, OFFSET 15' LEFT

EXISTING GROUND LINE, OFFSET 15' RIGHT

100 YEAR STORM SURGE ELEVATIONS:
CURRENT ELEVATION = 24.80
2075 MODERATE-HIGH SEA LEVEL RISE = 28.90

STREAM HYDROLOGY:
WSE_{50} = 19.40
EGL_{100} = 20.22
VEL_{100} = 7.42

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

EST. LIFTING WEIGHTS

90'-0" DPG SPAN, ASSEMBLED STEEL ONLY = 129,235 LB. (64.6 TON)
PRECAST CONCRETE ABUTMENT CAP = 82,800 LB. (41.4 TON)
PRECAST CONCRETE ABUTMENT BACKWALL = 51,695 LB. (25.9 TON)
PRECAST CONCRETE DECK PANEL = 22,300 LB. (11.2 TON)

REGISTERED PROFESSIONAL ENGINEER — NATHAN P. DICKERSON — No. C71974 — Exp. 12/31/23 — CIVIL — STATE OF CALIFORNIA

4-20-23

NO.	DATE	REVISIONS
	/ /	
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COMPLETION STATUS: FINAL — STATUS — 04/20/2023 DATE

APPROVED FOR UNION PACIFIC RAILROAD BY:
CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

DSN/CHK BY:	LAG/MJW
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S4 of S37

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB

6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: GENERAL ARRANGEMENT (SHEET 2 OF 2)

FILE NAME: pw://HDR.US.Net:orval.01/4195/1D053017/wnb30488_bca.dgn

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GENERAL NOTES

1. All work requirements shown on these drawings and not otherwise detailed shall be accomplished as specified in Union Pacific Railroad (UPRR) Specifications and the American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering. In the event of conflicts between specifications, the more restrictive shall apply.

2. **Construction means and methods shall comply with the All Permits Issued (API) package.**

3. All information shown on these drawings regarding location of the existing track, existing bridge and existing ground elevations are based on information provided by the Railroad including drawings of the existing bridge and a site location survey performed by HDR Engineering, Inc. dated 02-04-2021.

4. The existing bridge is to remain in service during construction of new bridge, except for change-out curfews. All curfews shall be coordinated with the Railroad.

5. Rail Stationing is based on the south face of north backwall of existing Bridge No. 304.88, Station 100+00.00. Elevations are based on existing track Top of Rail Elev. 118.38, Sta. 100+00.00.

6. **Contact the Union Pacific "Call Before You Dig" number 90 days (not less than 60 days) prior to proposed construction start date. Prior to construction, confirm that all necessary relocations have been completed. The CBUD website is: http://www.up.com/cbud.**

7. Location of known utilities is approximate. Location shall be verified prior to construction. Notify Dig Alert, (800) 422-4133, at least 48 hours prior to construction.

8. Subsurface exploration was performed by HDR Engineering, Inc. A copy of the Subsurface Exploration Report dated July 2022 is available from the UPRR Director Structures Design.

DIVISION OF RESPONSIBILITY

A. RAILROAD

1. Remove existing rail and install new rail.

2. Provide rail and OTM.

3. Provide material as shown in the Bill of Material.

4. Provide and install bridge marker signs at each end of bridge.

5. UPRR Manager of Bridge Construction to provide and install Private Property/No Trespassing Sign on the right side at each end of the bridge.

B. CONTRACTOR

1. Coordinate all construction activities with the Railroad and Vandenberg Space Force Base (VSFB).

2. **Before ordering any material, the Contractor shall make a detailed field inspection of the site verifying all pertinent dimensions and elevations. Any variations in dimensions or elevations from those shown on the drawings shall be reported immediately to the UPRR Project Manager.**

3. Any modifications to this design shall be approved by the UPRR Office of Structures Design prior to construction.

4. **Verify the location, relocation, abandonment, and/or temporary support of all utilities affected by the construction of the structure and embankment and coordinate these activities with the appropriate utility companies, agencies and/or authorities. All utilities supported by the existing structure shall be relocated prior to beginning construction of the proposed bridge.**

5. **Notify all public and private utility owners 48 hours prior to commencement of work adjacent to the utility. Contact DigAlert at 811 (Underground Service Alert of Southern California) and VSFB.**

6. Apply for and obtain all construction permits necessary to perform the work. This includes access clearance to VSFB.

7. Furnish material noted in the Bill of Material and incidental material not shown.

8. Install fiber optic conduit between handholes and abutment and on bridge between abutments. Fiber to be installed in conduit by fiber optic carriers.

9. Perform required field coating of structural steel.

10. Perform all work not performed by the Railroad.

11. Provide the Railroad with a detailed construction plan defining the activity, schedule and procedure for each aspect of the work. Construction shall not begin until the construction plan has been approved by the Railroad.

12. Provide all temporary structures (shoring, bracing and/or falsework) required to support and protect the existing embankments and structures affected by the work except for material furnished by the Railroad as shown in the Bill of Material. Provide the Railroad with details, design and procedure for all temporary structures. All temporary structures shall be designed, signed and sealed by a professional engineer registered in the State of California. All temporary structures shall be approved by the UPRR Office of Structures Design prior to beginning construction.

DESIGN NOTES

1. The proposed steel superstructure has been designed in accordance with the AREMA Manual for Railway Engineering, Chapter 15, Steel Structures.

2. The steel structure was designed for Cooper E80 Live Load (or Alternate Live Load when applicable) plus impact. Design longitudinal force per current AREMA.

3. The proposed substructures, retaining wall, and deck panels have been designed in accordance with the AREMA Manual for Railway Engineering, Chapter 8: Concrete Structures and Foundations.

4. These drawings were prepared using 8" ballast under timber ties.

5. This structure has been designed to accomodate 30" maximum total depth of ballast.

6. Steel spans have been designed to accomodate a 3" maximum offset from centerline of track to centerline of span.

CONSTRUCTION NOTES

GRADING

1. Provide and place all fill and subballast material per UPRR Grading Specifications. Perform grading as required to drain and match existing embankments.

CONSTRUCTION NOTES - CONT.

PROFILE

1. No change in rail elevation.

EXISTING RIGHT-OF-WAY

1. Approx. 50' right of CL existing track.
   Approx. 50' left of CL existing track.

FIELD WELDING

1. Welding shall be accomplished with the SMAW or FCAW Process.

2. Welding shall be in compliance with the requirements specified in AWS D1.5, except ⅝" fillet welds may be made with a single pass.

3. Welding electrodes shall be E7018 for SMAW or E71T-7 for FCAW.

4. Welders shall possess valid qualifications.

STEEL BRIDGE ERECTION

1. Bridge erection shall comply with AREMA Chapter 15, Part: 4 "Erection". The Contractor shall submit an electronic PDF of construction sequence and procedures for approval to the UPRR Office of Structures Design.

2. Reaming of holes during field erection is not allowed, unless approved by the Railroad.

FIELD COATING

1. All structural steel surfaces not coated in the shop and all coated surfaces damaged during shipping and/or handling shall be coated in the field after final assembly. See coating specifications in the coating system notes, sheets S6 and S7, for material, surface preparation and application requirements.

WELL-COMPACTED FILL

1. Well-compacted fill shall be well-graded granular soil free of any organic material, stones larger that 3 inches, frozen lumps, debris or excessive moisture. All compaction shall be determined using ASTM D1556 for field test and ASTM D1557 for moisture and density. Fill shall be compacted to 95% of maximum dry density as defined in ASTM D1557 (modified protractor). fill shall be placed in layers not to exceed 12 inches.

STRUCTURAL STEEL NOTES

1. Materials, fabrication and assembly shall be in accordance with Chapter 15: Steel Structures of the AREMA Manual for Railway Engineering.

2. Fabrication of structural steel shall be performed by a Fabricator certified under AISC Quality Certification Program for Intermediate Steel Bridges (IBR) with Fracture Critical Endorsement.

3. Material shall conform to the following requirements:

Girder Webs, Bottom Flanges	ASTM A709 Gr. 50 F2
Girder Top Flanges and Bearing Stiffeners	ASTM A709 Gr. 50 T2
Handrail Posts	ASTM A36
All Other Structural Steel	ASTM A572 Gr. 50
Anchor Rods and Anchor Bolts	ASTM F1554 Gr. 36
Handrail and Drain Pipe	ASTM A53 Gr. B

4. Weathering steel is not acceptable for any bridge components.

5. Design stresses for the following materials are in accordance with the AREMA Manual for Railway Engineering.

ASTM A36	Fy = 36,000 psi
ASTM A572 Gr. 50	Fy = 50,000 psi
ASTM A709 Gr. 50	Fy = 50,000 psi

6. Steel designated as fracture critical (FCM) shall comply with the requirements of AREMA Chapter 15, Section 1.14. Testing shall be performed for a minimum service temperature corresponding to Zone 2. Killed fine grain practice shall be used in the manufacture of FCM steel.

7. Structural steel shall be of the type and quality as designated on the drawings. Where indicated by the designation T2, material supplied shall meet the longitudinal Charpy V-notch requirements for Zone 2 as specified in AREMA Table 15-1-2.

8. All shop and field bolted connections shall use high strength bolts (including nuts and washers) conforming to ASTM F3125 Grade A325 Type 1, except as otherwise noted. Nuts shall conform to ASTM A563 Grade DH. All bolts shall be ⅛" diameter unless noted otherwise. Diameter of bolt holes shall be 1/16" larger than nominal bolt diameter, unless noted otherwise. All bolts shall have one hardened steel washer conforming to ASTM F436 per bolt under the element to be turned. All fasteners shall be galvanized in accordance with ASTM F2329 or mechanically zinc coated in accordance with ASTM B695. Fasteners shall not be of mixed specifications. Faying surfaces shall be class A with a minimum slip coefficient per AREMA.

9. High strength steel bolts shall be installed in accordance with the "Turn of the Nut Method". The procedure for installation is as specified by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation. Alternative bolt installation methods are subject to approval by the UPRR Office of Structures Design.

10. Bolts shall be installed so that the bolt heads are on the outside (exposed) surface of the member unless shown otherwise on the drawings. Bolts installed in a vertical orientation shall be installed so the nut is on the bottom. Threads shall be excluded from the shear plane in all connections.

11. Where not otherwise indicated on the drawings, the distance from the edge of a plate to the centerline of a bolt shall not be less than:

    a. 1.75 times the diameter of the bolt for sheared edges.
    b. 1.5 times the diameter of the bolt for rolled, planed, or thermally cut edges.
    c. 1.25 times the diameter of the bolt in flanges of rolled beams or channels.

12. Any machine bolts required for shipment shall be ASTM A307.

13. Fabrication shall be in accordance with the Bridge Welding Code, AWS D1.5. Welding of fracture critical members shall also conform to the applicable provisions of AREMA Manual for Railway Engineering, Chapter 15: Steel Structures. Welding to be allowed only as shown on the drawings and approved shop drawings.

14. Welded joints are to be AWS prequalified. Alternate joint details are subject to approval by the UPRR Office of Structures Design. All welding shall be done to minimize distortion. The welding sequence and procedures to be used shall be submitted for approval to the UPRR Office of Structures Design.

STRUCTURAL STEEL NOTES - CONT.

15. Fully automatic submerged arc welding shall be required for this project. Manual shielded arc welding or semi-automatic submerged arc welding shall be allowed only if fully automatic submerged arc welding is not practical. Alternate welding methods are subject to approval by the UPRR Office of Structures Design.

16. The Fabricator shall submit copies of welding procedure specifications (WPS), procedure qualification reports (PQR) and welder qualifications for review prior to any welding.

17. Permissible shop splice - Steel fabricator may provide complete penetration double v-groove welded, shop splices where required in accordance with the following:

    a. Splices shall be located 6" min. clear from all bolted and/or welded attachments to the girders.

    b. Tension flange splices shall not be located within the middle third of the girder span.

    c. All shop splice welds shall be ground smooth in the direction of stress.

    d. Plates shall be provided in maximum lengths as practical to minimize the number of splices required.

    e. Final locations of shop splices in flanges to be approved by the Engineer.

    f. Electroslag and electrogas welding process shall not be used.

18. Nondestructive testing of welds shall be performed by a Certified Weld Inspector (CWI) in accordance with the AREMA Manual for Railway Engineering Chapter 15: Steel Structures and the Bridge Welding Code, AWS D1.5, Section 3.5. Test results shall be furnished to the UPRR Office of Structures Design at least two weeks prior to shipping.

19. All bearing stiffeners shall be vertical under final dead loads. All intermediate stiffeners shall be placed normal to the girder bottom flange. All stiffeners and girder end plates shall be placed perpendicular to the web where not otherwise indicated in the drawings.

20. For welds designated to be ground flush, grinding shall be in the direction of applied stress.

21. All joints and edge preparation, removal of unacceptable weld or base metal, and backgouging shall be completed by machining. Rough removals may be completed by non-mechanical means.

22. The Fabricator shall submit detailed shop drawings at least 30 days prior to beginning fabrication. Fabrication shall not begin until shop drawings are approved.

23. All material certifications shall be submitted to UPRR for review prior to start of fabrication. Fabrication shall not begin until material certifications are approved.

24. All Fabricator questions shall be addressed to Adam Studts at adstudts@up.com.

25. All correspondence shall be directed to Adam Studts.

    Union Pacific Railroad
    1400 Douglas St., STOP 0910
    Omaha, NE 68179

26. Photographs of Fabricator's progress shall be submitted to the UPRR Office of Structures Design on a weekly basis.

27. All structural steel shall be coated in the shop with one of the specified systems. Hot dip galvanizing is preferred unless fabricated pieces are deemed too large or otherwise unsuitable for hot dip galvanizing, in which case thermal spray metallizing shall be used. The following shall be zinc coated after fabrication, including exposed faying surfaces:

    a. Welded girders (including all welded attachments after assembly) - thermal spray metalized.
    b. Bracing angles and gusset plates for lateral bracing and cross-frames of superstructure spans - hot dip galvanized.
    c. Sole plates and masonry plates - thermal spray metalized.
    d. Handrail assemblies - hot dip galvanized.
    e. Anchor rods - hot dip galvanized.
    f. Connection hardware (bolts, nuts, washers) - Hot dip galvanized or mechanically zinc coated.

28. After zinc coating, prepare surfaces, apply seal/intermediate coat as required and top coat based on type of zinc coating utilized. **Do not apply seal/intermediate and top coats to any faying surfaces.** Apply top coat in the field to field-bolted connections and surfaces damaged during transportation and erection after appropriate preparation.

29. Structural steel to be hot dip galvanized must be coordinated with the Galvanizer prior to fabrication. Submit and receive acceptance from the Galvanizer before submitting shop drawings to the Railroad. Include appropriate holes and/or lifting lugs to facilitate handling, venting and draining during the galvanizing process and provide them at the positions as agreed among the Railroad, Fabricator and Galvanizer.

30. Coating system conformance shall be the responsibility of the steel fabricator. All nonconformaties shall be resolved prior to shipment of piece.

31. Fabricator is responsible for providing appropriate coordination for the scope of surface preparation and coating work among the Fabricator, Galvanizer and Applicator to satisfy all coating system requirements.

32. The Fabricator shall shop assemble the spans prior to shipping. Photos and documentation of assembled spans shall be submitted to the Railroad at least two weeks prior to shipping. Coatings shall be applied prior to shop assembly. During assembly and reaming all bolts shall be placed in holes as work progresses to assure proper fit.

33. Shop assembled spans shall be made available for inspection by the Railroad at the Fabricator's plant before the steel is disassembled and shipped to the erection site. Units and pieces shall be match-marked as required. QC documentation shall be made available for inspection during this time.

34. Reaming of holes during field erection is not allowed, unless approved by the Railroad.

35. All steel components shall be inspected by the Fabricator before shipment.

36. All quality control test results shall be submitted to Union Pacific Railroad at least two weeks prior to shipping.

CAST-IN-PLACE CONCRETE NOTES

CONCRETE

1. All concrete materials, placement and workmanship shall be in accordance with Chapter 8: Concrete Structures and Foundations of the AREMA Manual for Railway Engineering.

2. Formwork tolerances shall be in accordance with ACI 347 specifications.

3. Minimum compressive strength at 28 days shall be 5000 psi.

4. Exposed surfaces shall be formed in a manner which shall produce a smooth and uniform appearance without rubbing or plastering. Exposed edges of 90° or less are to be chamfered ¾" x ¾". Top surfaces to have a smooth finish, free of all float or trowel marks.

5. Concrete shall be proportioned such that the water - cement ratio (by weight) does not exceed 0.40. Concrete shall contain a minimum of 6.5 sacks of cement per cubic yard of concrete.

6. Cement shall be Type I, Type II or Type III Portland Cement in accordance with ASTM C150 specifications.

7. Aggregates shall be graded in accordance with ASTM C33 specifications. Coarse aggregate shall be size no. 67. Fine aggregate shall be natural sand.

8. Entrapped air content shall be between 4% and 7% (by volume).

9. **DCI-S, as manufactured by GCP Applied Technologies, or approved alternate shall be added at a quantity of 2.5 gallons per cubic yard. Calcium nitrite solution shall contain 30% solids and shall provide 7.5 lbs. per cubic yard chloride protection. Mix shall also include 5%, by weight of cement, force 10,000 microsilica slurry by GCP Applied Technologies or approved alternative shall be used.**

10. **Proposed admixture alternates shall be approved by the Railroad. Any proposed substitution shall include documentation as to the corrosion protection mechanism, test data documenting the stated level of protection offered, and documentation that the proposed alternate meets a service life of 100 years as calculated using Fick's Second Law of Physics. All models shall use a reference diffusion coefficient of 2.81. Only systems as noted on drawings or approved alternative shall be used.**

11. Admixtures shall not be used without approval by the Railroad.

12. Curing shall be accomplished by wet curing or application of a Type 2 membrane.

13. Concrete proportions shall be established by the contractor in accordance with AREMA MRA, Chapter 8, Parts 1.2.5, "Method 3 - On the Basis of Field Experience" or "Method 2 - with Preliminary Tests". Concrete mix design shall be submitted to the engineer for approval at least 30 days prior to the start of concrete work.

14. Apply weld-crete chemical concrete bonding agent or approved alternate prior to placing new concrete against hardened concrete surfaces. Follow manufacturer's instructions.

REINFORCING STEEL

1. Reinforcing steel shall be deformed, new billet bars per ASTM A706 specifications and meet Grade 60 requirements.

2. Fabrication of reinforcing steel shall be per Chapter 7 of the CRSI Manual of Standard Practice. Dimensions of bending details are out to out of bar.

3. Reinforcing steel shall be blocked and tied to proper location and securely wired against displacement. Tie wires shall be installed at every other bar intersection so that at least 50% of the intersections are tied. Tack welding of reinforcing is prohibited. Minimum concrete cover on reinforcing not otherwise noted shall meet the AREMA Manual for Railway Engineering requirements.

4. Mechanical splices shall meet the following requirements:

    a. Mechanical splices shall not be used for any reinforcing steel in the "No Splice Zone" as indicated on the drawings.
    b. Any mechanical splices proposed by the Contractor shall be submitted for review and approval by the Engineer prior to reinforcing steel fabrication.
    c. Only mechanical splices prequalified by the Transportation Laboratory of the California Department of Transportation shall be allowed. A current list may be found at: https://dot.ca.gov/-/media/dot-media/programs/engineering/documents/mets/steel-reinforcing-couplers-a11y.pdf
    d. Submittal of proposed mechanical splices shall include:

        i. The type or series identification of the splice material including tracking information for traceability.
        ii. The bar grade and size number to be spliced.
        iii. A copy of the manufacturer's product literature giving complete data on the splice material and installation procedures.
        iv. A statement that the splicing systems and materials used in conformance with the manufacturer's installation procedures will develop the required tensile strengths, based on the nominal bar area, and will conform to the total slip requirements and the other requirements in the California Department of Transportation Standard Specifications.
        v. A statement that the splice material conforms to the type of mechanical splice in the California Department of Transportation current prequalified list.

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

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UNION PACIFIC

DSN/CHK BY: MJW/LAG	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/MJW	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: S5 of S37	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: GENERAL NOTES (SHEET 1 OF 4)

FILE NAME: pw://HDR_US_National.01/41951/D0530127/ark30488.bcd.dgn

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PRECAST CONCRETE NOTES

CONCRETE

1. All concrete materials, placement and workmanship shall be in accordance with Chapter 8: Concrete Structures and Foundations of the AREMA Manual for Railway Engineering.

2. Minimum compressive strength at 28 days shall be 6000 psi.

3. Exposed surfaces shall be formed in a manner which shall produce a smooth and uniform appearance without rubbing or plastering. Exposed edges of 90° or less are to be chamfered ¾" x ¾". Top surface to have a smooth finish, free of all float or trowel marks.

4. Concrete shall be proportioned such that the water - cement ratio (by weight) does not exceed 0.40. Concrete shall contain a minimum of 6 ½ sacks of cement per cubic yard of concrete.

5. Cement shall be Type I, Type II or Type III Portland Cement in accordance with ASTM C150 specifications.

6. Aggregates shall be graded in accordance with ASTM C33 specifications. Coarse aggregate shall be size no. 67. Fine aggregate shall be natural sand.

7. Entrapped air content shall be between 4% and 7% (by volume).

8. **DCI-s, as manufactured by GCP Applied Technologies, or approved alternate shall be added at a quantity of 2.5 gallons per cubic yard. Calcium nitrite solution shall contain 30% solids and shall provide 7.5 lbs. per cubic yard chloride protection. Mix shall also include 5%, by weight of cement, force 10,000 microsilica slurry by GCP Applied Technologies or approved alternative shall be used.**

9. Admixtures shall not be used without approval by the Railroad.

10. Curing shall be accomplished by wet curing or application of a Type 2 membrane.

11. The Fabricator shall stencil the Fabricator's name, date of fabrication, bridge number and piece mark at location shown on the drawings.

12. Production procedures for the manufacture of precast members shall be in accordance with the AREMA Manual for Railway Engineering and the Prestressed Concrete Institute's Manual MNL 116 for Quality Control.

13. Dimensional tolerances governing the manufacture of precast members shall conform to Division VI, Section 6.4 of the Precast Concrete Institute's Manual MNL 116 for Quality Control for the appropriate shape. Tolerance for location of lifting devices shall be +/- ½".

14. The Fabricator shall be responsible for loading and properly securing all precast concrete members for shipment. All concrete components shall be made available for inspection by the Railroad at the Fabricator's plant prior to shipment, at the Railroad's discretion.

REINFORCING STEEL

1. Reinforcing steel shall be deformed, new billet bars per ASTM A706 specifications and meet Grade 60 requirements.

2. Fabrication of reinforcing steel shall be per Chapter 7 of the CRSI Manual of Standard Practice. Dimensions of bending details are out to out of bar.

3. Reinforcing steel shall be blocked and tied to proper location and securely wired against displacement. Tie wires shall be installed at every other bar intersection so that at least 50% of the intersections are tied. Tack welding of reinforcing is prohibited. Minimum concrete cover on reinforcement shall meet the provisions of the AREMA Manual for Railway Engineering requirements.

LIFTING ANCHORS

1. Swift lift anchors shall be Dayton Superior P-52 anchors or approved alternate with a safe working load sufficient for the weight of the precast element including form removal. The safe working load shall provide a minimum safety factor of 4.

EMBEDDED STEEL

1. Steel plate shall conform to ASTM A36 or A 709-Grade 36 Specifications. Studs shall be C1015, C1020 cold drawn steel which conform to ASTM A108 Specifications.

2. Embedded steel shal be galvanized in accordance with ASTM F2329.

PRESTRESSED CONCRETE NOTES

CONCRETE

1. All concrete material, placement and workmanship shall be in accordance with Chapter 8: Concrete Structures and Foundations of the AREMA Manual for Railway Engineering.

2. The compressive strength of the panel concrete shall exceed 6,500 psi at 28 days and 4,000 psi at transfer of the prestressing force. The compressive strength of the curb concrete shall exceed 4,000 psi at 28 days.

3. Cement shall be Type I, Type II or Type III Portland Cement in accordance with ASTM C150 specifications.

4. Air entraining agents shall be in accordance with the requirements specified in ASTM C260. The total entrained air content shall be 6% +/-1% by volume of the plastic concrete.

5. Water reducing admixtures shall be in accordance with the requirements specified in ASTM C494.

6. Aggregates shall be graded in accordance with ASTM C33 specifications. Coarse aggregate shall be size no. 67. Fine aggregate shall be natural sand.

7. Concrete shall be proportioned such that the water - cement ratio (by weight) does not exceed 0.40. Concrete shall contain a minimum of 7 sacks of cement per cubic yard of concrete. The slump shall not exceed 3".

8. The Fabricator may use a high range water reducing agent in order to obtain a slump greater than 3".

9. **DCI-s, as manufactured by GCP Applied Technologies, or approved alternate shall be added at a quantity of 2.5 gallons per cubic yard. Calcium nitrite solution shall contain 30% solids and shall provide 7.5 lbs. per cubic yard chloride protection. Mix shall also include 5%, by weight of cement, force 10,000 microsilica slurry by GCP Applied Technologies or approved alternative shall be used.**

PRESTRESSED CONCRETE NOTES - CONT.

10. **Proposed admixture alternates shall be approved by the Railroad. Any proposed substitution shall include documentation as to the corrosion protection mechanism, test data documenting the stated level of protection offered, and documentation that the proposed alternate meets a service life of 100 years as calculated using Fick's Second Law of Physics. All models shall use a reference diffusion coefficient of 2.81. Only systems as noted on drawings or approved alternative shall be used.**

11. Mix design shall be submitted to the Railroad for approval prior to fabrication.

12. Curing shall be accomplished by use of a Type I-D membrane or by steam.

PRESTRESSING STRAND

1. Prestressing strand shall be a ½" diameter, seven wire, uncoated, low relaxation strand which is in accordance with the requirements specified in ASTM A416. The strand shall be an ultimate tensile strength of 270 ksi. The initial prestress shall be 30,600 lbs. per strand unless noted otherwise.

2. All strands are straight.

3. Strands shall be tested in accordance with PCI recommendations (Moustafa Method) and certified by the Fabricator as having adequate bond characteristics to satisfy the prediction equations for transfer and development length given in the AREMA Manual for Railway Engineering.

4. An alternate strand pattern which has the same eccentricity as the pattern shown on in these drawings and is better suited to the Fabricator's facilities shall be considered. Fabricator shall submit plans and computations for Railroad approval prior to casting.

REINFORCING STEEL

1. Reinforcing steel shall be deformed, new billet bars per ASTM A615 specifications meeting Grade 60 requirements.

2. Fabrication of reinforcing steel shall be per Chapter 7 of the CRSI Manual of Standard Practice. Dimensions of bending details are out to out of bar.

3. Bars crossing construction joints shall be epoxy coated. Epoxy coating and epoxy repair shall be in accordance with Chapter 8, Article 1.6.3.2 of the AREMA Manual for Railway Engineering.

4. Reinforcing steel is to be blocked to proper location and securely wired against displacement. Tie wires shall be installed at every other bar intersection so that at least 50% of the intersections are tied. Use plastic protected reinforcing supports, meeting CRSI specifications Chapter 3, Class I tack welding of reinforcing is prohibited. Minimum concrete cover on reinforcement shall meet the provisions of the AREMA Manual for Railway Engineering.

MANUFACTURE

1. Production procedures and dimensional tolerances for the manufacture of precast, prestressed members shall be in accordance with the AREMA Manual for Railway Engineering and Precast/Prestressed Concrete Institute's Manual MNL 116 for Quality Control.

2. Tolerances for location of lifting devices shall be +/- ½".

3. The ends of the strands shall be burned off and recessed to a depth of 1". Such recesses and minor spalls shall be filled and finished to the drawing dimensions using an epoxy bonding compound and grout.

4. Curb shall be cast after panel is removed from the form.

5. Bonding agent shall be Carlisle Sure-Seal 90-8-30A or approved alternate. Follow manufacturer's instructions.

6. Surfaces shall be formed in a manner which shall produce a smooth and uniform appearance without rubbing or plastering. Exposed edges of 90° or less are to be chamfered ¾" x ¾". Unformed surfaces shall have a smooth finish free of all float and trowel marks.

7. The Fabricator shall stencil the Fabricator's name, date of fabrication, bridge number, piece mark and lifting weight at location shown on the drawings.

8. The Fabricator shall be responsible for loading and properly securing all precast concrete members for shipment. All concrete components shall be made available for inspection, by the Railroad, at the Fabricator's plant prior to shipment, at the Railroad's discretion.

LIFTING ANCHORS

1. Swift lift anchors shall be Dayton Superior P-52 anchors or approved alternate with a safe working load sufficient for the weight of the precast element including form removal. The safe working load shall provide a minimum safety factor of 4.

HOT DIP GALVANIZED (HDG) COATING SYSTEM NOTES

1. Surface preparation, material handling, and coating application shall be performed in accordance with the current edition of ASTM A123, "Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products" and these notes. HDG shall be Thickness Grade 100.

2. The coating system shall consist of:

   Hot Dip Galvanized Coating (HDG):
   ASTM A123, Thickness Grade 100 (3.9 mils minimum)

   Intermediate Coat:
   Epoxy intermediate coat- shop apply 4-8 mils minimum dry film thickness (DFT). Stripe coat all edges, welds and discontinuities.

   Top Coat:
   Acrylic polyurethane or acrylic polysiloxane top coat. Shop apply 3-5 mils minimum DFT. Stripe coat all edges, welds and discontinuities. Field apply top coat to any areas damaged during erection and to all field installed fasteners.

3. The HDG system shall provide a mean slip coefficient that meets or exceeds the required mean slip coefficient shown in these plans as determined in accordance with procedures outlined by the Research Council on Structural Connections (RCSC) "Specification for Structural Joints Using High Strength Bolts." Where the faying surface is not specified, the HDG system shall provide a minimum slip coefficient of 0.33. Any required testing shall be performed at no expense to the Railroad. **Do not apply the intermediate coat or top coat to any faying surfaces.**

HOT DIP GALVANIZED (HDG) COATING SYSTEM NOTES CON'T

4. Steel shop drawings shall be reviewed and accepted by the Galvanizer prior to submittal to the Railroad. Proof of galvanizer coordination shall be included in shop drawings sent to the Railroad for approval. Holes and/or lifting lugs to facilitate handling, venting and draining during the galvanizing process shall be provided at the positions as agreed among the Railroad, Fabricator and Galvanizer. Fill or plug vent holes after galvanizing.

5. Galvanizer shall mark all materials with a clearly visible tag indicating the fabricator name, piece mark/match mark, galvanizer name, type of coatings and applicable standards.

6. Galvanizer shall have and follow a written Quality Control/Quality Assurance plan for specified coatings.

7. Prepare hot dip galvanized surfaces for painting in accordance with ASTM D6386 Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting. All exposed galvanizing shall be sweep blasted per SSPC SP16 to achieve a 1-3 mil profile. Inaccessible areas shall be abraded per SSPC SP2 or SP3 to achieve a 1-3 mil profile and to remove all runs, drips and sags.

8. **Intermediate coat shall be applied as soon as practical after preparing hot dip galvanized surfaces and no longer than eight (8) hours after preparation. Do not apply the intermediate coat to any faying surfaces.**

9. **The color of the top coat shall be Federal Standard Color AMS-STD-595-16081 (Engine Gray). Do not apply the top coat to any faying surfaces.**

10. Intermediate coat and top coat shall be supplied by the same coating manufacturer and designated by the coating manufacturer for use as a recommended system. The coating system shall provide excellent corrosion resistance, abrasion resistance, color durability, chemical resistance, moisture resistance and adhesion to metal or primed substrates.

11. Application of the intermediate and top coats shall be made in accordance with the current edition of AASHTO/NSBA Steel Bridge Collaboration S8.1/SSPCA-PA Guide 13: "Guide Specification for Application of Coating Systems with Zinc-Rich Primers to Steel Bridges" and the supplier's recommendations.

12. The shop coating shall be applied by an Applicator certified by AISC 420-10/SSPC QP-3 Certification Standard for Shop Applications of Complex Protective Coating Systems and have a minimum of 10 years of experience on similar projects.

13. The Applicator shall employ a NACE Level 2 Coatings Inspector (Inspector) to conduct and document inspection of the cleaning and painting operation.

14. Submit the following items for approval at least thirty (30) days prior to start of work:

    a. Galvanizer's qualifications and references for at least three (3) similar projects completed in the last five (5) years with a similar scope of work
    b. Applicator's (shop and field) qualifications and references for at least three (3) similar projects completed in the last five (5) years with a similar scope of work
    c. Inspector's qualifications
    d. Supplier's certification that the proposed paint system and recommended application instructions meets the project requirements
    e. Paint system product data sheet (PDS) including:
       i. Recommended surface preparation.
       ii. Application and curing instructions.
       iii. Material safety data sheet (MSDS).
       iv. Other pertinent technical data.
    f. Applicator's written procedures for application of coating system. The document shall include:
       i. Means for verifying and maintaining paint supplier data.
       ii. List of equipment to be used in the application of coating system.
       iii. Means of measuring and recording dry film thickness and cure time.
       iv. Procedures for protection of faying surfaces.

15. The Applicator shall keep daily records of performed work and submit quality control records to the Railroad weekly, at the completion of each piece, and at least 2 weeks prior to shipment of the piece. Quality control records shall include:

    a. Documentation of surface preparation.
    b. Documentation of environmental conditions during the application process.
    c. Photographs of the application process.
    d. Dry film thickness measurements of each applied coat.

16. Damaged or improperly applied coatings shall be reported by the Inspector to the Engineer. The report shall describe the non-conformance issues and propose corrective action to repair the coating in accordance with S8.1/SSCPA-PA Guide 13, Appendix B.

17. Take care to protect coated materials from damage during storage, transport and erection. Lift coated components by supplied lifting lugs, or with fabric slings and support coated materials on blocks, straps, skids or cradles of ample bearing area to prevent damage. Protect coated materials during transportation from rubbing and chafing.

18. Field painting and field repairs of painted surfaces shall be performed by an Applicator certified by SSPC QP1 for field painting with a minimum of 10 years of experience on similar projects.

19. Provide Applicator for field coating of connections and surfaces damaged during transportation and erection. Submit field coating procedures for approval at least thirty (30) days before beginning of field coating work. Field coating procedures must comply with laws and regulations and all conditions of the API for the project. All other requirements of shop coating also apply to field coating work.

20. Acceptable paint systems include the following:

    a. Wasser Corporation
       Intermediate Coat: MC Miomastic 100 applied 4-5 mils DFT
       Top Coat: MC Ferrox A 100 applied 3-4 mils DFT
    b. Sherwin-Williams Company
       Intermediate Coat: Macropoxy 646-100 applied 5-10 mils DFT
       Top Coat: Sherloxane 800 applied 4-6 mils DFT
    c. International Paints, LLC
       Intermediate Coat: Intergard 475 HS Epoxy applied 4-6 mils DFT
       Top Coat: Interfine 979 Acrylic Polysiloxane applied 4-6 mils DFT

METALLIZED COATING SYSTEM NOTES

1. Surface preparation, material handling, and coating application shall be performed in accordance with the current edition of AASHTO/NSBA Steel Bridge Collaboration S8.2/SSPC-PA 18, "Specification for Application of Thermal Spray Coatings (TSC) for Steel Bridges" and these notes.

2. The coating system shall consist of:

   Thermal Spray Coating:
   85/15 Zn/Al alloy wire (ASTM B833). Shop apply 8 mils min to 16 mils max

   Seal Coat:
   Clear phenolic seal coat. Shop apply 1.5 mil to 2.5 mil dry film thickness (DFT)

   Top Coat:
   Acrylic polyurethane or acrylic polysiloxane top coat. Shop apply 3-5 mils minimum DFT. Stripe coat all edges, welds and discontinuities. Field apply top coat to any areas damaged during erection and to all field installed fasteners.

3. Feedstock for the TSC shall meet the requirements of AWS C2.25, "Specification for Thermal Spray Feedstock Wire and Rods."

4. The TSC system shall provide a mean slip coefficient that meets or exceeds the required mean slip coefficient shown in these plans as determined in accordance with procedures outlined by the Research Council on Structural Connections (RCSC) "Specification for Structural Joints Using High Strength Bolts." Where the faying surface is not specified, the TSC system shall provide a minimum slip coefficient of 0.33. Any required testing shall be performed at no expense to the Railroad. **Do not apply the seal coat or top coat to any faying surfaces.**

5. **Seal coat shall be applied as soon as practical after thermal spraying and preferably within eight (8) hours. If the sealer cannot be applied within eight (8) hours, it shall be verified by visual inspection that the TSC has not been contaminated and that the surface is dust free by using the pressure-sensitive tape method test (ISO 8502-3). Do not apply the seal coat to any faying surfaces.**

6. **The color of the top coat shall be Federal Standard Color AMS-STD-595-16081 (Engine Gray). Do not apply the top coat to any faying surfaces.**

7. Seal coat and top coat shall be supplied by the same coating manufacturer and designated by the coating manufacturer for use as a recommended system. The coating system shall provide excellent corrosion resistance, abrasion resistance, color durability, chemical resistance, moisture resistance and adhesion to metal or primed substrates.

8. The shop coating shall be performed by an Applicator certified SSPC QP 6 Contractor Metalizing Certification and have a minimum of 10 years of experience on similar projects.

9. Application of the top coat shall be made in accordance with the current edition of AASHTO/NSBA Steel Bridge Collaboration S8.1/SSPCA-PA Guide 13: "Guide Specification for Application of Coating Systems with Zinc-Rich Primers to Steel Bridges" and the supplier's recommendations.

10. The Applicator shall employ a NACE Level 2 Coatings Inspector (Inspector) to conduct and document inspection of the cleaning and painting operation.

11. Submit the following items for approval at least thirty (30) days prior to start of work:

    a. Applicator's (shop and field) qualifications and references for at least three (3) different projects completed within the last five (5) years
    b. Applicator's written qualification plan for TSC operator qualification in accordance with AWS C2.16
    c. Supervisor's qualifications and experience
    d. QC inspector's qualifications and experience
    e. Roster of TSC operators and certification of operators in accordance with the qualification plan
    f. Supplier's certification that the TCS system and recommended application instructions meets the project requirements
    g. Material data sheets for the TCS system including:
       i. Recommended surface preparation.
       ii. Application and curing instructions.
       iii. Safety Data Sheet (SDS).
       iv. Other pertinent technical data.
    h. Applicator's written procedures for application of coating system. The document shall include:
       i. Means for verifying and maintaining paint supplier data.
       ii. List of equipment to be used in the application of coating system.
       iii. Means of measuring and recording dry film thickness and cure time.
       iv. Procedures for protection of faying surfaces

12. The Applicator shall keep daily records of performed work and submit records to the Railroad weekly at the completion of each piece, and at least 2 weeks prior to shipment of the piece.

    a. Documentation of surface preparation.
    b. Documentation of environmental conditions during the application process.
    c. Photographs of the application process.
    d. Dry film thickness measurements of each applied coat.

13. Damaged or improperly applied coatings shall be reported to the Engineer. The report shall describe the non-conformance issues and propose corrective action to repair the coating.

14. Take care to protect coated materials from damage during storage, transport and erection. Lift coated components by supplied lifting lugs, or with fabric slings and support coated materials on blocks, straps, skids or cradles of ample bearing area to prevent damage. Protect coated materials during transportation from rubbing and chafing.

15. Field painting and field repairs of painted surfaces shall be performed by an Applicator certified by SSPC QP1 for field painting with a minimum of 10 years of experience on similar projects.

16. Provide Applicator for field coating of connections and surfaces damaged during transportation and erection. Submit field coating procedures for approval at least thirty (30) days before beginning of field coating work. Field coating procedures must comply with applicable laws and regulations and all conditions of the API for the project. All other requirements of shop coating work also apply to field coating work.

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER — NATHAN P. DICKERSON — No. C71974 — Exp. 12/31/23 — CIVIL — STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

FDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY: MJW/LAG	**UNION PACIFIC RAILROAD** — Office of Director Structures Design
DRAWN/CHK BY: MAM/MJW	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
UPRR ENGINEER: ADS	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
SHT NO.: S6 of S37	SHEET TITLE: GENERAL NOTES (SHEET 2 OF 4)

FILE NAME: pw://HDR.US.National.01/41957/1/D63017/wrk30488.bcw.dgn

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METALLIZED COATING SYSTEM NOTES - CONT.

17. Acceptable paint systems include the following:

    a. Wasser Corporation
       Seal Coat: MC-Metallization Sealer applied 1.5-2.5 mils DFT
       Top Coat: MC Ferrox A 100 applied 3-4 mils DFT
    b. Sherwin-Williams Company
       Seal Coat: Macropoxy 646-100 applied 5-10 mils DFT
       Top Coat: Sherloxane 800 applied 4-6 mils DFT
    c. International Paints, LLC
       Seal Coat: Intergard 475 HS Epoxy applied 4-6 mils DFT
       Top Coat: Interfine 979 Acrylic Polysiloxane applied 4-6 mils DFT

DRILLED PILE NOTES

GENERAL

1. Drilled piles have been designed in accordance with the AREMA Manual for Railway Engineering, Chapter 8, Part 2: Design and Part 24: drilled pile Foundations.

2. Drilled piles shall derive their support from side friction in dune sand, alluvial deposits, and shale.

3. Drilled pile construction shall be in accordance with the AREMA Manual of Railway Engineering, Chapter 8: Concrete Structures and Foundations, Part 24: drilled pile Foundations.

4. Contractor shall submit proposed drilled pile installation method with the bid. Installation methods shall be compatible with subsurface conditions at the site and shall be accepted by the Railroad prior to construction. Proposed method shall include equipment and procedures for excavation, pipe pile casing installation, slurry management plan, reinforcing steel and concrete placement, as applicable.

5. If actual subsurface conditions differ substantially from those provided, notify the Railroad immediately by phone, e-mail, or fax and in writing within 48 hours of such a determination.

6. The Contractor shall:

    a. Construct drilled piles as detailed and noted on these drawings and in accordance with these notes.
    b. Provide an on-site supervisor and drillers having a minimum of five years of acceptable drilled pile experience with similar depths, diameters, and access conditions.
    c. Develop and adhere to a program for quality control.
    d. Perform and report the results of quality control testing.
    e. Perform all excavation and concrete placement work in the presence of the Railroad unless otherwise permitted.
    f. Inspect each drilled pile for depth, diameter, and cleanliness immediately prior to rebar and concrete placement.
    g. Take samples and make tests during concrete placement.
    h. Provide the means and opportunity for the Railroad to inspect the operation during drilling, shaft cleaning, and concrete placement.

7. The Contractor shall submit the following to the Railroad for approval at least 14 days before the start of the work, if applicable:

    a. Experience record of supervisory and drilling personnel.
    b. Quality control program.
    c. Detailed description of shaft construction method.
    d. List of equipment and operating procedures.
    e. Pipe pile casing material properties and quantities in accordance with these notes.
    f. Concrete materials and mix proportions in accordance with these notes.
    g. Slurry management plan.
    h. Shop drawings showing placement of reinforcing steel, CSL pipes and TIP cables including splice details and locations and any supplemental steel framing as required.
    i. Welding procedures for pipe pile casing and reinforcement.
    j. AWS welder certification.
    k. A test report from the slurry supplier giving the slurry type and admixtures and the physical and chemical properties of the mixed slurry.

8. The Contractor shall submit the following to the Railroad during construction, as applicable:

    a. Notification of drilling 24 hours in advance to permit in-place inspection of the finished excavation prior to placement of reinforcing steel and concrete.
    b. Reports of material quantities including concrete, reinforcing steel, pipe pile casing and slurry.
    c. Certified mill test reports for reinforcing steel, including bar markings.
    d. Down-hole slurry test results in accordance with the requirements in these notes.
    e. Concrete batch-plant tickets containing the information required by ASTM C94.
    f. Reports of as-built location, alignment, elevations, and dimensions of drilled shafts, specifically identifying any piles that are not in accordance with the notes and drawings.
    g. Graphical plot of depth or elevation vs. theoretical concrete volume and actual measured volume for each drilled pile in accordance with these notes.
    h. Results of concrete compressive tests at 7 days and 28 days.
    i. TIP testing results within two (2) working days and final report within five (5) working days of completion of testing each shaft.
    j. CSL testing results within two (2) working days and a final report within five (5) working days of completion of testing each shaft.

9. The Contractor shall be solely responsible for any additional investigation and/or remediation if drilled pile testing reveals potentially unacceptable conditions in completed drilled piles. Investigation results and remediation plans must be submitted to and approved by the Railroad prior to implementation.

CAST-IN-PLACE CONCRETE

1. See cast-in-place concrete notes except as follows.

2. Prior to the addition of admixtures, concrete shall have a slump not greater than 4 inches. During placement, concrete shall have a slump of not less than 6 inches using the dry uncased or permanent steel casing method, 6 inches using the temporary steel casing method, or 7 inches using the slurry displacement method.

REINFORCING STEEL

1. Splice bars in conformance with the drawings. Submit any alternative splice details to the Railroad for acceptance.

2. The minimum clear distance between vertical reinforcing steel, including lapped bars, shall be 1.5 times the bar diameter or four times the maximum aggregate size, whichever is larger.

3. Place reinforcing steel cage immediately prior to the start of concrete placement. Provide spacer rollers to maintain the reinforcing cage at the proper location. Secure the cage against displacement.

4. No vertical movement of reinforcing steel is permissible during or after concrete placement.

5. For butt splice see "BUTT WELDED REINFORCING SPLICES" notes.

PIPE PILE CASING

1. Pipe pile casings are required as indicated on the plans.

2. Pipe pile casing shall have sufficient strength to withstand handling stresses, drilling and driving stresses, concrete pressures, and surrounding earth and water pressures. Steel for pipe pile casing shall conform to the requirements of ASTM A252 Grade 2. Submit size, wall thickness, type of steel and length of casing to the Railroad for acceptance.

3. The minimum wall thickness for the pipe pile casing shall be 5/8 inch, and any additional thickness needed depending on the Contractor's selected methods of transporting, handling and installing the pipe pile.

4. Pipe pile casing shall be driven or vibrated and seated in the shale.

5. Submit the proposed method of pipe pile casing installation prior to the mobilization of equipment to the site.

6. If pipe pile casing splices are necessary, furnish full-penetration welds meeting the requirements of "Structural Welding Code - Steel" (ANSI/AWS D1.1) of the American Welding Society requirements for joints in non-corrugated permanent steel casings. Welders shall be AWS certified. Submit any alternative splice details to the Railroad for acceptance.

7. Deliver pipe pile casings to site in undamaged condition. Handle and protect pipe pile casing to maintain diameter within 2 percent.

CONTROLLED SLURRY

1. Slurry shall consist of a stable colloidal suspension of polymers or pulverized clay minerals (bentonite/attapulgite) thoroughly mixed with water and shall meet the following specified properties at 60° F:

    a. Density of slurry at a distance of 1' from shaft bottom shall be measured by mud balance before concrete placement in accordance with ASTM D4380. For mineral slurries, maximum density shall be 70 pcf for shafts in side friction only and 62.4 pcf for shafts with end bearing capacity included. Maximum density shall be 64 pcf for polymer slurries.
    b. Marsh funnel viscosity shall be measured per the "Standard Procedure for Field Testing Water-Based Drilling Fluids" American Petroleum Institute API-RP13B-1, Section 2. The allowable range for entry shall be 26 to 50 seconds per quart for mineral slurries. For polymer slurries, the allowable range for entry shall be 40 to 90 seconds per quart, or as recommended by manufacturer and approved by the Railroad.
    c. Sand content at a distance of 1' from shaft bottom shall be measured by sand screen set before concrete placement in accordance with ASTM D4381. For mineral slurries, maximum sand content shall be no greater than 4% by volume for shafts in side friction only and no greater than 1% by volume for shafts with end bearing capacity included. Maximum sand content shall be no more than 1% by volume for polymer slurries.
    d. During excavation, the pH of the slurry shall be measured in accordance with ASTM D4972. Allowable range of pH shall be 7 to 12.

2. Slurry shall be from sources acceptable to the Railroad. Mix, store and transport slurry using equipment made for these purposes.

3. Water used to mix slurry shall be free from contaminants and shall be from sources acceptable to the Railroad.

4. Required slurry properties shall be maintained before and during concrete placement to prevent settlement of soil solids and maintain a stable hole.

CONSTRUCTION

1. Qualified construction personnel shall be present at the excavated hole at all times.

2. Use tolerances for construction in accordance with ACI 117, except as noted.

3. Top of drilled piles shall be at the elevations shown on the Foundation Plan, Sheet No. S15.

4. Drilled piles shall be advanced to the tip elevations shown in the Foundation Table, Sheet No. S15.

5. Drilled pile construction methods shall be determined by the Contractor based on site and subsurface conditions, unless otherwise specified on the drawings. Construction methods are subject to acceptance by the Railroad. These notes apply to the following methods, alone or in combination:

    a. Pipe Pile Casing with wet hole concrete placement
    b. Pipe Pile Casing with Slurry Displacement

6. Provide pipe pile casing for shaft excavation as required.

7. Pipe pile casing shall be used to form portion of drilled pile indicated on Sheet No. S16, unless otherwise approved by the Railroad.

8. Embedment and overall length of pipe pile casing shall be selected by the Contractor based on the depth required for lateral stability of the pipe pile casing and the height of the drilled pile, but shall not be less than the minimum specified on the drawings.

9. If pipe pile casing extends below the elevations shown on Sheet No. S16, the engineer shall be notified to determine if changes to the drilled pile are necessary.

10. Use excavation methods that leave the sides and bottom of the hole free of loose material that would prevent intimate contact of the concrete with firm, undisturbed soil. The hole bottom shall have less than 2" of sediment or loose material. Reclean hole if loose or unacceptable material is present.

11. The Contractor is responsible for verifying actual final bearing levels and suitability of bearing stratum during excavation. Concurrence of suitability from the project geotechnical engineer is required. Inspection and testing of the drilled piles will be the responsibility of the Contractor and shall be performed by an independent testing engineer. Qualifications shall be approved by the railroad prior to the start of construction.

12. Keep all soil and excavated materials away from each open shaft excavation to avoid contamination of the excavation after final clean out.

13. If water inflow or sidewall instability encountered exceeds that acceptable to the Railroad, use alternate means to reduce inflow, such as extending pipe pile casing, grouting or other acceptable means.

CONSTRUCTION, CONT.

14. Place concrete as soon as possible after completion of excavation. Notification of concrete placement shall be made at least 24 hours in advance unless waived by the Railroad.

15. Do not start concrete placement until a concrete supply adequate to fill the shaft is assured. Place concrete within the time period during which the excavation remains clean and stable and the concrete remains fluid.

16. Complete placement of concrete in open excavations before the end of each work day. If concrete placement will exceed the amount possible in a single work day, then concrete placement must proceed continuously from start to finish using sufficient night lighting and multiple work shifts as necessary to maintain safety.

17. For placing concrete underwater, use tremie or concrete pumping with acceptable procedures in accordance with AREMA Manual of Railway Engineering, Chapter 8, Sections 1.14 and 1.15.

18. Place concrete in shaft in one continuous operation unless otherwise permitted by the Railroad.

19. Theoretical concrete volume shall be computed based on actual drilled pile dimensions as measured in the field. Actual concrete volume shall be recorded during placement at intervals not exceeding one shaft diameter and plotted on a graph vs. theoretical volume to check for proper shaft geometry.

20. Perform concrete testing for quality control. Provide a minimum of 4 standard cylinders per 50 cubic yards of concrete, 4 per day, or 4 per batch, whichever is greater. Perform concrete compressive tests as follows: 1 test at 7 days and 2 tests at 28 days. Hold 1 cylinder for further testing as required.

21. Protect tops of shafts against damage and for curing to prevent moisture loss and temperature extremes in accordance with AREMA Manual of Railway Engineering, Chapter 8, Part 1: Materials, Tests and Construction Requirements.

22. Provide pipe pile casing for shaft excavation as required. The Contractor shall conduct casing installation operations and drilled pile excavation such that the adjacent soil outside the casing and drilled pile excavation is not disturbed.

23. Use excavation methods that leave the sides and bottom of the hole free of loose material that would prevent intimate contact of the concrete with solid, undisturbed soil.

CONSTRUCTION BY SLURRY DISPLACEMENT (IF REQUIRED)

1. For construction by slurry displacement, use controlled slurry to stabilize the excavation. Slurry consisting of water in combination with colloidal fines from the soil being excavated shall not be used unless the Contractor demonstrates to the satisfaction of the Railroad that the slurry adequately stabilizes the hole.

2. Where drilled piles are to be installed below groundwater or in caving soils, maintain the slurry level in the excavation not less than 5 feet above the groundwater level or higher if needed to provide a stable hole. Maintain the slurry level above any unstable zones a sufficient distance to prevent caving or sloughing of those zones. Contractor is responsible to ensure that stable conditions are being maintained.

3. Set temporary surface steel casing to contain the slurry, unless waived by the Railroad.

4. Provide any physical or chemical treatment of the water or slurry that is necessary to meet the specified properties for controlled slurry required by these notes, subject to the acceptance of the Railroad.

5. Test slurry by the methods specified in these notes. Provide all equipment required for the tests specified. A slurry sampler capable of obtaining slurry samples at any depth within the drilled pile excavation shall be available at the site.

6. The in-hole slurry shall meet the specified properties prior to concrete placement. Clean, re-circulate, remove sand from, or replace the slurry to maintain the required slurry properties. Recycling of slurry is permitted provided that the recycled slurry meets the specified properties. Submit a written record of results for the tests for each drilled pile installed to the Railroad.

7. Use drilling tools and excavation procedures that minimize negative pressure and avoid disturbance of surrounding material in the excavation. Raise and lower the drilling tool in the hole at a rate that does not swirl the slurry and affect the stability of the hole.

8. Complete concrete placement of the drilled pile promptly the same day that the excavation is completed. If this is not possible, redrill, clean, and test the slurry in the excavation before concrete placement.

9. During concrete placement, pump the displaced slurry to holding tanks. Do not allow slurry to spill onto or contaminate the site. Do not use excavated slurry pits, unless accepted by the Railroad.

10. Dispose of the slurry in a legal and acceptable manner.

11. Place concrete by tremie methods or by pumping in accordance with AREMA Manual of Railway Engineering, Chapter 8, Part 1, Section 1.14: Depositing Concrete.

12. Embed tremie or pump pipe sufficiently in concrete to maintain seal throughout concrete placement to prevent re-entry of slurry suspension into the pipe. Provide minimum embedment of 10 feet. If the seal is lost, withdraw pipe, replace the seal and restart tremie operation using a capped tremie or a capped pump pipe.

13. Displace out of the shaft or remove from the shaft the first portion of concrete that comes to the top of the shaft that contains concrete contaminated with slurry until acceptable concrete is visible. Add or remove concrete to reach the specified top of drilled pile elevation.

14. Raise or lower the tremie pipe in an acceptable manner that does not break the seal and does not cause channelization or segregation.

15. Do not use aluminum pipe or equipment for placing concrete.

THERMAL INTEGRITY PROFILE (TIP) TESTING

1. Drilled piles shall be monitored continuously during concrete placement and curing using thermal integrity profiling. Contractor's TIP consultant is responsible for performing TIP testing and evaluating each drilled pile based on TIP testing within 2 days of concrete placement. TIP testing procedures and equipment shall be in accordance with ASTM D7949 "Standard Test Methods for Thermal Integrity Profiling of Concrete Deep Foundations".

2. The qualifications of the Consultant and the specifications for the equipment used shall be submitted to the Engineer for approval prior to beginning shaft installation.

3. The TIP Consultant shall have a licensed professional engineer supervising the testing and interpretation of results. The TIP Consultant shall be an independent testing agency with documented and approved experience in TIP testing.

4. Furnish and install one Thermal Wire Cable per foot of drilled pile diameter for use in TIP testing of each drilled pile. Lower end of TIP cables shall extend to the bottom of the drilled pile. Install at even spacing on reinforcing steel cage in accordance with manufacturer's recommendations. TIP cables shall be located equal distances between adjacent CSL pipes.

5. Provide a Thermal Integrity Profiler (TIP), as manufactured by Pile Dynamics, Inc. (30725 Aurora Road, Cleveland, Ohio 44139, (216) 831-6131; www.pile.com/pdi). The Equipment shall have the following minimum requirements:

    (a) A computer based TIP Data Acquisition System to monitor and download temperature versus time after casting.
    (b) Ability to automatically collect data at user defined time intervals (typically 15 minutes).

6. Thermal Wire Cables shall be connected to a Thermal Access Port (TAP). Care shall be taken to record the position of each cable in the cage by serial number. Data shall be collected by the TAP at intervals of 15 minutes for a duration of 48 hours or as approved by the Railroad, but no sooner than reaching peak curing temperature. After completion of the data collection period, the TAP shall be connected to the main TIP data acquisition unit and the data files shall be downloaded for inspection of temperatures versus depth.

7. Potential local anomalies indicated by locally low temperatures relative to the average temperature at that depth, or average temperatures significantly lower than the average temperatures at other depths, shall be immediately reported to the Railroad.

8. TIP results shall be presented in a written report within 5 working days of completion of the testing. The report shall include the following:

    (a) Top of shaft and bottom of shaft adjustments per the manufacturer's recommendations, so that the temperature plots are adjusted for end effects.
    (b) Graphical displays of all temperature measurements versus depth.
    (c) Indication of unusual temperatures, particularly significantly cooler local deviations of the average at any depth from the overall average over the entire length.
    (d) The overall average temperature. This temperature is proportional to the average radius computed from the actual total concrete volume installed (assuming a consistent concrete mix throughout).
    (e) Variations in temperature between Thermal Wire Cables (at each depth) which in turn correspond to variations in cage alignment.
    (f) Estimate of cage alignment, or offset from center.

9. The TIP report shall include recommendations as to the acceptability, unacceptability, soundness, ect. of the drilled pile.

CROSS-HOLE SONIC LOG (CSL) TESTING

1. Drilled piles shall be evaluated by cross-hole sonic log testing. Contractor's independent testing Consultant is responsible for performing CSL testing on each drilled pile no sooner than 3 days but within 14 days of concrete placement. CSL testing shall be per ASTM D6760-16.

2. Furnish and install one standard 2 inch nominal diameter steel pipe per foot of drilled pile diameter for use in CSL testing of each drilled pile. Pipes shall be equally spaced inside of any reinforcing steel cage or supplementary steel bracing. The lower end of the pipes shall extend to the bottom of the drilled pile. Pipes shall meet the requirements of ASTM A53, Grade B.

3. Pipes shall be sufficiently regular and free from defects so as to permit the free and unobstructed passage of the probes. Pipes shall be installed such that all internal joints are flush. Pipes shall be watertight with clean internal and external faces, the latter to ensure good bond between the concrete and the pipes.

4. Pipes shall be fitted with screw-on watertight shoes and caps and shall be securely fixed to the interior of the reinforcing steel cage. The pipes shall be filled with water and plugged or capped before concrete placement. The upper end of the pipe shall not be left open during or after concrete placement. The pipes shall extend at least 2'-6" above the top of the drilled pile concrete.

5. CSL pipes shall be secured to prevent deformation or relative displacement during handling and concrete placement. Where possible, pipes shall be securely fixed to the interior of the reinforcing steel cage. Additional reinforcing steel or steel bracing shall be used to secure pipes not adjacent to or below the bottom elevation of the reinforcing steel cage. Submit shop drawings for approval by the Railroad.

6. CSL tubes shall be filled with cementitious grout (f'c = 4000 psi) after acceptance of test results by the Railroad and prior to superimposed construction.

7. The CSL report shall include recommendations as to the acceptability, unacceptability, soundness, ect. of the drilled pile. The test results shall include CSL logs with analyses of initial pulse arrival time versus depth and pulse energy/amplitude versus depth at a minimum.

NOTE:
FOR DRILLED PILE ELEVATION AND SECTIONS, SEE SHEET NO. S15 AND S16.

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS
04/20/2023 — DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P. Dickerson — CONSULTANT ENGINEER
04/20/2023 — DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY: MJW/LAG	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/MJW	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: S7 of S37	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: GENERAL NOTES (SHEET 3 OF 4)

FILE NAME: pw:/HDR.US.National.01/41951/D263017/mk30488.bcd4.dgn

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MISCELLANEOUS STEEL NOTES

1. Materials, fabrication and workmanship shall be in accordance with Chapter 15: Steel Structures of the current AREMA Manual for Railway Engineering.
2. Miscellaneous steel shall conform to ASTM A36 or A992 specifications unless noted otherwise. Miscellaneous steel shall be plain unless noted otherwise.
3. Where galvanizing is indicated, miscellaneous steel shall be pickled in accordance with SSPC-SP8 and hot-dipped galvanized in accordance with ASTM A123 specifications. Coating weight shall be 2.3 oz. per sq. ft.
4. Where coating is indicated, miscellaneous steel shall be coated in accordance with one of the systems specified on Sheet No. S6.
5. Bolts and nuts to be zinc plated in accordance with ASTM F2329 specifications unless noted otherwise.
6. Welding shall be by the arc process per AREMA Manual for Railway Engineering and AWS D1.1 Structural Welding Code. Welding shall be performed by qualified welders.

WATERPROOFING NOTES

1. Spray-applied elastomer waterproofing membrane and integrated ballast protection mat shall be field applied to the proposed bridge as specified on sheet no. S36.
2. Spray-applied elastomer waterproofing membrane and integrated ballast protection mat shall be furnished by Bridge Preservation L.L.C., or approved equal. Prepare surfaces and apply in accordance with the manufacturer's recommendations:

   Contact:

   Bridge Preservation L.L.C.
   686 South Adams Street
   Kansas City, KS 66105
   913-321-9000
3. Contractor shall utilize applicator holding a current authorized applicator certificate from Bridge Preservation LLC. Applicator qualifications shall be submitted at least three weeks prior to beginning of waterproofing installation.
4. Contractor to submit material specifications and installation procedures per project specifications to UPRR Office Of Structures Design at least two weeks prior to beginning waterproofing installation.
5. After installation of waterproofing is complete, obtain acceptance from the Railroad Project Manager and imediately cover the surface with six (6) inches of ballast.

HP PILE DRIVING

1. Piles shall be driven to refusal in shale bedrock and achieve the required allowable capacity and minimum tip elevation shown in the "Foundation Table" on Sheet S15.
2. The allowable capacity of driven piles shall be determined using the PDA + CAPWAP or PDA (Case Method) as outlined below. Direct questions to the Structures Design Group, UPRR Office of Structures Design. If any numbered pile cannot be driven to the required allowable capacity, the Structures Design Group shall be notified.
3. All piles shall be driven within 3" of the plan location, within ¼" per foot from the vertical or intended batter line and rotation within 5 degrees from its intended orientation. Piles driven out of tolerance shall be pulled and or additional piles driven as required by the Engineer. Any pile damaged in driving or handling as to impair its structural capacity shall be replaced.
4. Splice piles per detail on Sheet S8. Pile splices shall be located a minimum of 15' below the proposed ground line at abutments and a minimum of 25' below the bottom of footing at bridge piers.
5. Piles shall be driven with steam, air, diesel or hydraulic impact hammer. Contractor shall use pile driving equipment capable of installing the piles within tolerance and to the required allowable strength and minimum tip elevation without causing damage to the pile.

ACTIVE DRIVING CONTRACTOR REQUIREMENTS - CAPACITY VERIFICATION

1. All piles shall be driven to capacity shown in the design plan set and to the minimum pile tip elevation, as required on the design plans.
2. Allowable capacity shall include one of the following factors of safety on the calculated ultimate capacity, based on the verification method selected and subsurface conditions. Verification method may be selected by the Contractor unless specifically prescribed in the design plans:

   METHOD 1 - PDA + CAPWAP - FACTOR OF SAFETY = 2.0

   Dynamic Testing on test piles using signal matching in accordance with ASTM D4945: Contractor to utilize a qualified PDA Consultant and perform PDA testing and CAPWAP analyses and provide PDA reports. An engineer who has achieved an Intermediate Level or better on the PDI/PDCA Dynamic Measurement and Analysis Proficiency Test shall be in charge of PDA operation and of result interpretation, either on site or by remote connection (SiteLink).

   METHOD 2 - PDA (CASE METHOD) - FACTOR OF SAFETY = 2.25

   Dynamic Testing on test piles using a Pile Driving Analyzer in accordance with ASTM D4945 without CAPWAP analysis. Contractor to utilize a qualified PDA Consultant and perform PDA testing and analyses and provide PDA reports. An engineer who has achieved an Intermediate Level or better on the PDI/PDCA Dynamic Measurement and Analysis Proficiency Test shall be in charge of PDA operation and of result interpretation, either on site or by remote connection (SiteLink).
3. PDA sensors shall be installed and dynamic testing shall be performed in accordance with PDI recommendations.
4. One production pile per each 100' of bridge length shall be designated as a test pile, with a minimum of two test piles per bridge. For spans longer than 100', one pile at each supporting bent or pier shall be designated as a test pile. The test pile shall be the first production pile of a bent or pier.
5. A separate test pile is required for each change in pile size or type along the bridge length; test piles are not acceptable for use in determining pile driving criteria for a pile of a different size or type, even when the test pile may be within 100'.

ACTIVE DRIVING CONTRACTOR REQUIREMENTS - CAPACITY VERIFICATION, CONT'D

6. Test piles will provide verification of bearing depths, axial capacities and driving conditions using one of the methods in note 2 prior to driving the remaining piles in the vicinity of the test pile. The Contractor's Engineer shall evaluate the test pile data and revise the pile driving criteria as needed for the remaining piles in the vicinity of the test pile. Revised driving criteria shall be submitted to the Railroad for approval. For diesel hammers, air/steam hammers, and single acting hydraulic hammers, provide driving criteria that relates hammer stroke and blows per foot to the ultimate pile capacity. For double acting hydraulic hammers, provide driving criteria that relates transferred energy and blows per foot to the ultimate pile capacity.
7. If any numbered pile cannot be driven to the required allowable capacity, the UPRR Office of Director Structures Design shall be notified.

[When restrike is specified in the design plans, note 8 shall apply.]

8. Piles may require setup time to achieve adequate capacity. See design plans for restrike instructions and requirements.

POST DRIVING CONTRACTOR REQUIREMENTS - RESULTS REPORTING

1. Mark every pile with a dimension indicating the pile depth from cutoff to point of pile. Round dimension to the nearest foot. The mark shall be welded on the low milepost side of the pile, approximately 1'-0" below the bottom of the cap, and in numbers of approximately 3" in height. If a pile is not exposed, no mark is required.
2. A pile capacity report for each test pile shall be submitted to the Railroad within 48 hours of driving the pile. The report shall also include the PDA output report and/or full CAPWAP output report. The report shall be sealed by an engineer licensed in the state of the bridge construction. PDA reports shall be filled out by an independent 3rd party inspector. PDA testing and CAPWAP analysis shall be conducted by the same consultant.
3. The Railroad's Pile Driving Record form, which provides documentation of pile driving conditions for the full length of the pile, shall be completed for each test pile and submitted to the Railroad within 48 hours of pile driving.
4. The Contractor shall coordinate and pay for all pile capacity verification and pile testing.

SAFETY

1. After driving, pipe piles cut off lower than 4' above an adjacent walking surface shall be covered with a cap secured against displacement and capable of withstanding a concentrated live load of 250 pounds at the center of pile with a maximum deflection of 1/16 of the pile diameter.

VIBRATORY HAMMER

1. Vibratory hammers may be used for initial set only. All piles shall be driven to capacity with an impact hammer and have capacity verified by one of the stated pile capacity verification methods.
2. Where a vibratory hammer will be used for initial set, the Geotechnical Engineer shall determine the maximum allowable depth for vibratory driving. This maximum depth shall be provided in the pre-construction wave equation analysis submittal for review by the Railroad.
3. Vibratory hammer usage may be allowed for piles that are driven to rock or similar end bearing refusal material, contingent on approval from the UPRR Office of Director Structures Design. Where a vibratory hammer is used, all piles shall be impact driven at their final tip elevation to verify the pile driving criteria have been met.
4. Due diligence must be provided to ensure the use of a vibratory hammer does not negatively impact the existing or proposed structure(s) through liquefaction or other subsurface subsidence issues. A boring log must be obtained prior to utilizing a vibratory hammer.
5. Monitoring of adjacent structures during vibrating will be required. The scope of monitoring will vary with size, location, and subsidence risk of adjacent structures.

BUTT WELDED REINFORCING SPLICES

1. Butt welded splices shall meet the following requirements:
   a. Except for resistance butt welds, butt welded splices of reinforcing bars shall be complete joint penetration butt welds conforming to the requirements in AWS D1.4, and these Specifications.
   b. Welders and welding procedures shall be qualified in conformance with the requirements in AWS D1.4.
   c. Only the joint details and dimensions as shown in Figure 3.2, "Direct Butt Joints," of AWS D1.4, shall be used for making complete joint penetration butt welds of bar reinforcement. Split pipe backing shall not be used.
   d. Butt welds shall be made with multiple weld passes using a stringer bead without an appreciable weaving motion. The maximum stringer bead width shall be 2.5 times the diameter of the electrode and slagging shall be performed between each weld pass. Weld reinforcement shall not exceed 0.16 inches in convexity.
   e. Electrodes used for welding shall meet the minimum Charpy V notch impact requirement of 27 degree J at -4 degrees Fahrenheit.
   f. All bars to be welded shall conform to the requirements of ASTM A706.
   g. IN the event that any of the specified preheat, interpass, and post weld cooling temperatures are not met, all weld and heat affected zone metal shall be removed and the splice reweided.
   h. Welding shall be protected from air currents, drafts, and precipitation to prevent loss of heat or loss of arc shielding. The method of protecting the welding area from loss of heat or loss of arc shielding shall be subject to approval by the engineer.
   i. Reinforcing bars shall not be direct but spliced by thermite welding.
   j. Procedures to be used in making welded splices in reinforcing bars, and welders employed to make splices in reinforcing bars, shall be qualified by tests performed by the Contractor on sample splices of the type to be used, before making splices to be used in the work
2. Resistance butt welding of reinforcing steel bars shall meet the following requirements:
   a. Shop produced resistance butt welds shall be produced by a fabricator who is approved by the Transportatoion Laboratory of the California Department of Transportation.
   b. Before manufacturing hoops using resistance butt welding, the Contractor shall submit to the Engineer the manufacturer's Quality Control (QC) manual for the fabrication of hoops. At a minimum, the QC manual shall include the following:
      i. The pre-production procedures for the qualification of materials and equipment.
      ii. The methods and frequencies for performing QC procedures during production.
      iii. The calibration procedures and calibration frequency for all equipment.
      iv. The welding procedure specification (WPS) for resistance welding.

ELASTOMERIC BEARING NOTES

1. Elastomeric bearings shall be fabricated and installed in accordance with the AREMA Manual for Railway Engineering (MRE), Chapter 15: Steel Structures.
2. Elastomeric bearing material shall be furnished with the dimensions, material properties, elastomer grade specified in the drawings.
3. The elastomeric compound shall be cast polyurethane and conform to the requirements of AREMA MRE Chapter 15, Table 15-5-5 "Elastomeric Material Property Test Requirements" and ASHTO M251 for low temperature elastomer grade 2.
4. Elastomeric bearings shall be tested by the manufacturer in accordance with AREMA MRE Chapter 15, Section 5.12.9: Test Criteria 1. The manufacturer shall certify that each bearing meets the material specifications and testing requirements and provide a certified copy of the test results.

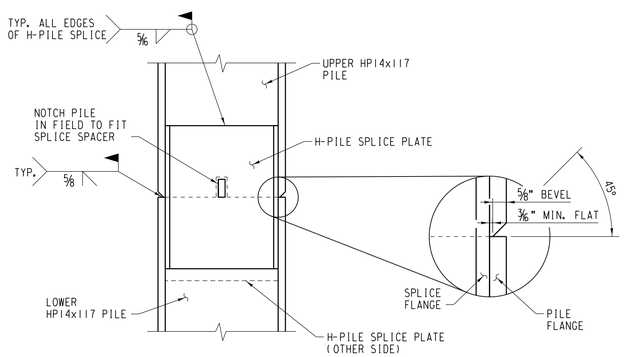
INSTALLATION INSTRUCTIONS:

(NOTE: SPLICE IS SHOWN INSTALLED ON UPPER PILE SECTION FIRST. ALTERNATIVELY, SPLICE MAY BE INSTALLED ON BOTTOM SECTION FIRST.)

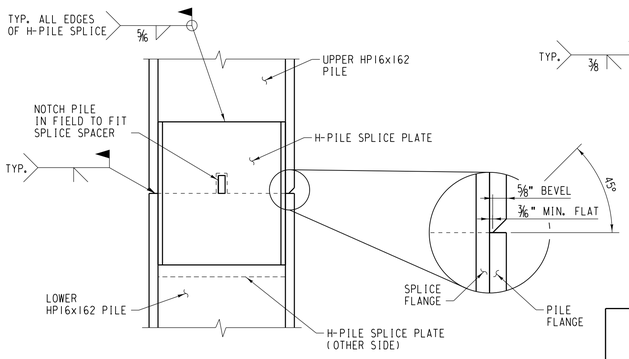
1. NOTCH THE END OF H-PILE SECTION TO RECEIVE SPLICE FIRST (NOTCH TO ACCOMMODATE THE SPLICE SPACER BAR).
2. FIT SPLICE PLATES OVER NOTCHED END OF H-PILE AND FILLET WELD BOTH SPLICE PLATE ENDS TO PILE WEB AS SHOWN.
3. FOR HP14x117: ADD 5/8" BEVEL AT 45° ON EXTERIOR FLANGES OF TOP PILE.

   FOR HP16x162: ADD 45° BEVEL ON EXTERIOR FLANGES OF TOP PILE.
4. PLACE THE UPPER H-PILE SECTION INTO POSITION ONTO THE LOWER SECTION.
5. COMPLETE WELD ALONG ALL SPLICE PLATE EDGES WITH SINGLE PASS 5/16" FILLET WELD. COMPLETE FOR BOTH H-PILE SPLICE PLATES.
6. FOR HP14x117: WELD FLANGE JOINT BETWEEN UPPER AND LOWER PILE SECTIONS WITH 2 PASS 5/8" BEVEL WELD.

   FOR HP16x162: WELD FLANGE JOINT BETWEEN UPPER AND LOWER PILE SECTIONS WITH COMPLETE JOINT PENETRATION GROOVE WELD.



HP14x117

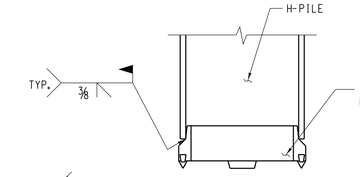


HP16x162

PILE SPLICE DETAILS
SCALE: 1½"=1'-0"
(IF REQUIRED)

TIP REINFORCEMENT INSTALLATION INSTRUCTIONS:

1. FIT POINT ONTO SQUARE CUT PILE.
2. WELD POINT TO THE PILE IN EITHER FLAT OR VERTICAL POSITION.
3. FILL THE AREA ACROSS BOTH FLANGES WITH WELD.



PILE TIP DETAIL
SCALE: 1½"=1'-0"

BILL OF MATERIAL

REQ'D	UNIT	DESCRIPTION	STORE ITEM NO.	ORDERED BY
6	EA.	(IBR, FCE) 90' STEEL DECK PLATE GIRDER SPAN, FABRICATED STEEL INCL. CROSS FRAMES, FASTENERS (PER NOTES, SHT. S5 & DETAILS SHTS. F1-F4)		CONTRACTOR
12	EA.	FIXED DISC BEARING ASSEMBLY FOR 90'-0" STEEL DPG-BD SPAN (PER NOTES AND DETAILS, SHT. F5)		
8	EA.	EXPANSION DISC BEARING ASSEMBLY (AT PIERS) FOR 90'-0" STEEL DPG-BD SPAN (PER NOTES AND DETAILS, SHT. F5)		
4	EA.	EXPANSION DISC BEARING ASSEMBLY (AT ABUTMENTS) FOR 90'-0" STEEL DPG-BD SPAN (PER NOTES, SHT. F5 AND DETAILS, SHT. F6)		
48	EA.	PRECAST CONCRETE DECK PANEL PDP-1 (PER NOTES, SHT. S6 AND DETAILS, SHT. P3)		
18	EA.	PRECAST CONCRETE DECK PANEL PDP-2 (PER NOTES, SHT. S6 AND DETAILS, SHT. P4)		
1,080	LIN. FT.	ELASTOMERIC BEARING PADS FOR PRECAST CONCRETE DECK PANELS (PER NOTES SHT. S8 AND DETAILS, SHT. S35)		
1	LOT	SIKADUR 31 HI-MOD GEL ADHESIVE OR APPROVED EQUAL FOR BEARING PAD		
2	EA.	PRECAST CONCRETE ABUTMENT SEAT (PER SCHEDULE, SHT. P1)		
2	EA.	PRECAST CONCRETE ABUTMENT BACKWALL (PER SCHEDULE, SHT. P2)		
1	LOT	MATERIAL FOR ABUTMENT #1 ENCASMENT (PER SCHEDULE, SHT. S21)		
1	LOT	MATERIAL FOR ABUTMENT #7 ROCK SOCKETS (PER SCHEDULE, SHT. S16)		
1	LOT	MATERIAL FOR ABUTMENT #7 ENCASMENT (PER SCHEDULE, SHT. S24)		
1	LOT	MATERIAL FOR CAST-IN-PLACE CONCRETE PIER #2 (PER SCHEDULE, SHT. S26)		
1	LOT	MATERIAL FOR PIERS #3, #4 AND #5 ROCK SOCKETS (PER SCHEDULE, SHT. S16)		
1	LOT	MATERIAL FOR CAST-IN-PLACE CONCRETE PIERS #3, #4, AND #5 (PER SCHEDULE, SHT. S29)		
1	LOT	MATERIAL FOR PIER #6 ROCK SOCKETS (PER SCHEDULE, SHT. S16)		
1	LOT	MATERIAL FOR CAST-IN-PLACE CONCRETE PIER #6 (PER SCHEDULE, SHT. S31)		
1	LOT	SONIC LOG TESTING TUBES AND HARDWARE (PER NOTES, SHT. S7 AND DETAILS, SHT. S16)		
1	LOT	MATERIAL FOR THERMAL INTEGRITY PROFILING FOR ROCK SOCKETS (PER NOTES, SHT. S7)		
18*	EA.	HP14x117x 60'-0" LONG STEEL PILE (ASTM A572 GR. 50, COAL TAR EPOXY COATED)		
22*	EA.	HP16x162x 60'-0" LONG STEEL PILE (ASTM A572 GR. 50, COAL TAR EPOXY COATED)		
6*	EA.	HP14x117 PILE SPLICER (PER DETAIL, SHT. S8)		
6*	EA.	HP16x162 PILE SPLICER (PER DETAIL, SHT. S8)		
16	EA.	TIP REINFORCEMENT HARD-BITE POINT MODEL HP-77600-B FOR HP14x117 STEEL PILE		
20	EA.	TIP REINFORCEMENT HARD-BITE POINT MODEL HP-77600-B FOR HP16x162 STEEL PILE		
1	LOT	MISCELLANEOUS STEEL (PER NOTES, SHT. S8 AND SCHEDULE, SHT. M1)		
1	LOT	DECK DRAIN MATERIAL (PER SCHEDULE, SHT. S37)		
1	LOT	MATERIAL FOR FIBER OPTIC CONDUIT BY CHAMPION FIBERGLASS OR APPROVED EQUAL		
1	LOT	SPRAY APPLIED WATERPROOFING w/ INTEGRATED BALLAST PROTECTION MAT BY BRIDGE PRESERVATION OR APPROVED EQUAL (PER SCHEDULE, SHT. S36)		
1	LOT	RETAINING WALL MATERIALS (PER DETAILS, SHTS. S17-S18)		
1	LOT	ABUTMENT DRAINAGE MATERIAL (PER DETAILS, SHTS. S17-S18)		
1	LOT	ITW REDHEAD EPCON C6+ ADHESIVE OR APPROVED ALTERNATE		
1	LOT	4000 PSI NON-SHRINK GROUT		
1	LOT	4000 PSI SELF LEVELING GROUT		
1	LOT	WELD CRETE CONCRETE BONDING AGENT OR APPROVED ALTERNATE		
1	EA.	BRIDGE MARKER AND NO TRESPASSING SIGNS, MOUNTING POST AND MOUNTING HARDWARE (PER STD. DWG. 0502, 0507, 0538, AND 0599)	P00-2616	UPRR MANAGER TRACK PROJECTS

EST. WT. OF STEEL PILING (NOT INCL. POINTS OR SPLICERS) = 340,200 LB. (CONTRACTOR)
EST. WT. OF MISCELLANEOUS STEEL (NOT INCL. BOLTS) = 47,700 LB. (CONTRACTOR)

* TWO ADDITIONAL 60' LENGTHS OF PILE AND 6 SPLICERS ARE PROVIDED FOR EACH PILE SUPPORTED SUBSTRUCTURE, IN THE EVENT ESTIMATED TIP DEPTHS ARE EXCEEDED. CONTRACTOR SHALL BE RESPONSIBLE FOR ORDERING ADDITIONAL PILE LENGTHS AND SPLICES, IF REQUIRED.

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

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	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

HDR

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Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S8 of S37

UNION PACIFIC RAILROAD
Office of Director Structures Design

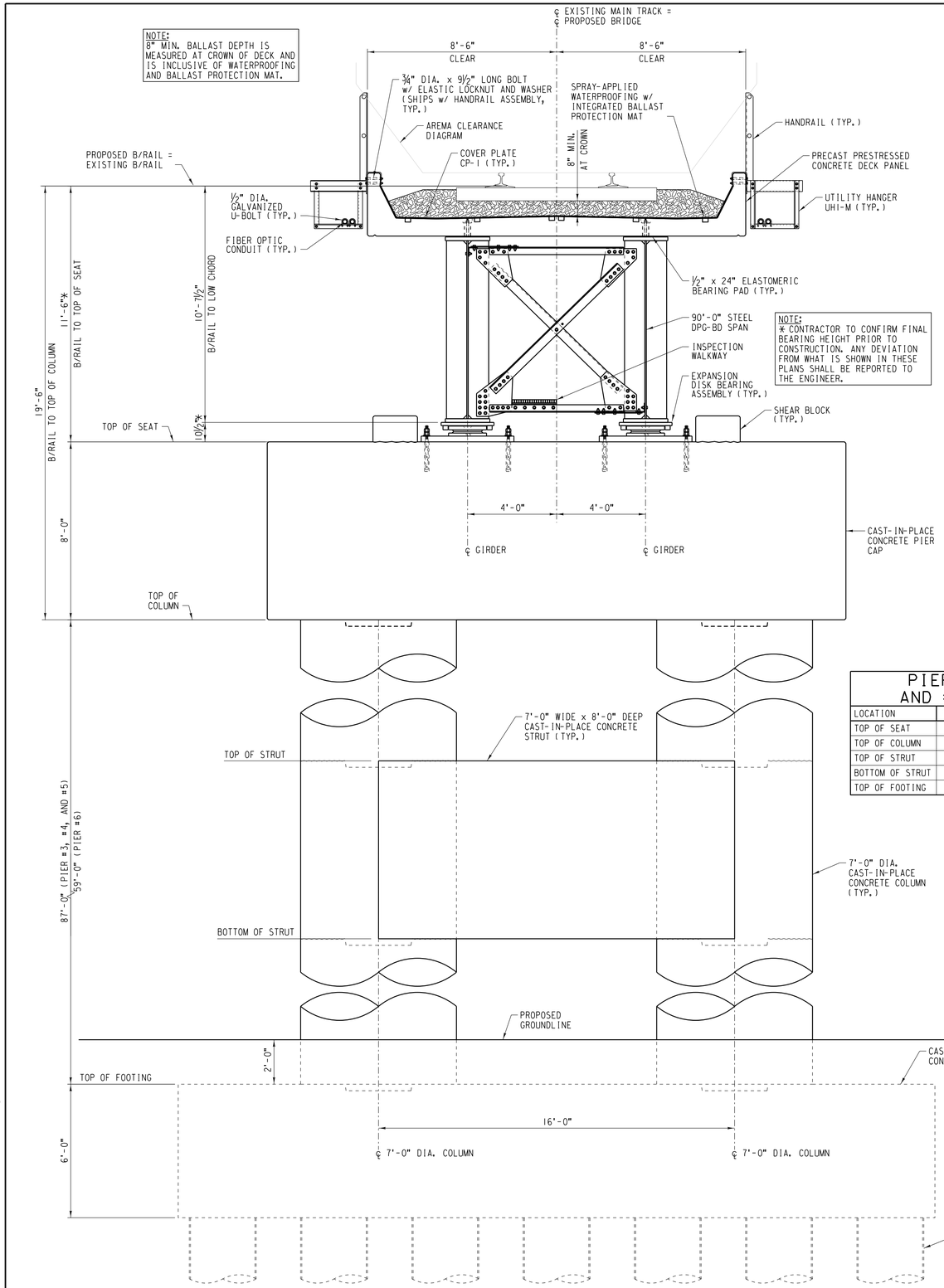
LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: GENERAL NOTES (SHEET 4 OF 4) AND BILL OF MATERIAL

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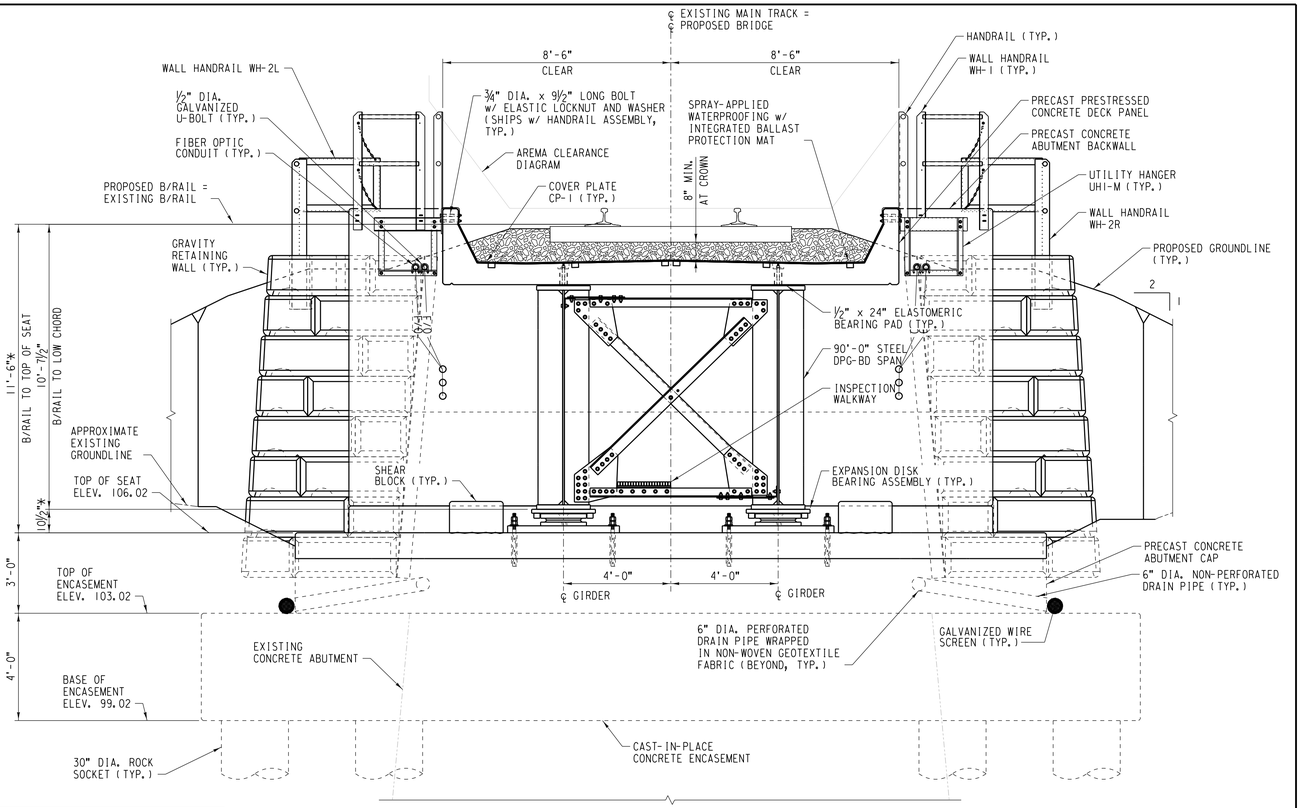
NOTE:
8" MIN. BALLAST DEPTH IS MEASURED AT CROWN OF DECK AND IS INCLUSIVE OF WATERPROOFING AND BALLAST PROTECTION MAT.



NOTE:
* CONTRACTOR TO CONFIRM FINAL BEARING HEIGHT PRIOR TO CONSTRUCTION. ANY DEVIATION FROM WHAT IS SHOWN IN THESE PLANS SHALL BE REPORTED TO THE ENGINEER.

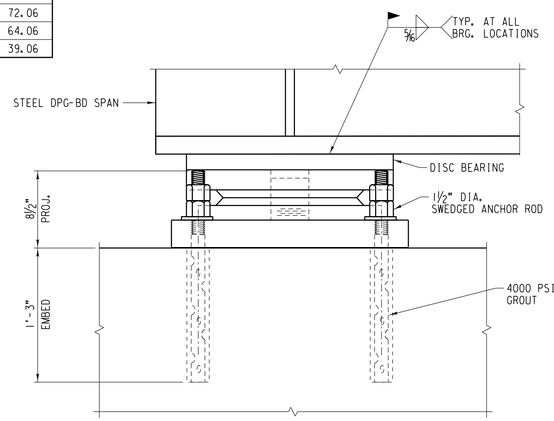
RIGHT
SECTION A
SCALE: ⅜"=1'-0"
3 | 9
(PIER #3, #4, AND #6 SIMILAR)

NOTE:
SEE PIER FRAMING DETAILS FOR ELEVATIONS AND DIMENSIONS FOR OTHER PIERS.



RIGHT
SECTION B
SCALE: ⅜"=1'-0"
3 | 9

PIER #3, #4, #5, AND #6 ELEVATIONS				
LOCATION	PIER #3	PIER #4	PIER #5	PIER #6
TOP OF SEAT	106.19	106.15	106.10	106.06
TOP OF COLUMN	98.19	98.15	98.10	98.06
TOP OF STRUT	58.19	58.15	58.10	72.06
BOTTOM OF STRUT	50.19	50.15	50.10	64.06
TOP OF FOOTING	11.19	11.15	11.10	39.06



BEARING INSTALLATION DETAIL
SCALE: 1½"=1'-0"

BEARING WELD NOTE:
AT BEARING TO GIRDER WELDED CONNECTION, GIRDER AND BEARING COATINGS SHALL BE PROTECTED AS MUCH AS PRACTICAL. IN THE WELD LOCATION, REMOVE COATINGS AS REQUIRED FOR WELDING AND PREP SURFACE TO RECEIVE WELD PER THE PROJECT SPECIFICATIONS. AFTER WELDING IS COMPLETE, CLEAN AND PREP SURFACE BEFORE REPAIRING COATINGS PER THE PROJECT SPECIFICATIONS.

NOTE:
SEE SHEET F6 FOR EXPANSION JOINT AT ABUTMENT INSTALLATION DETAILS.

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
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UNION PACIFIC RAILROAD
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LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB

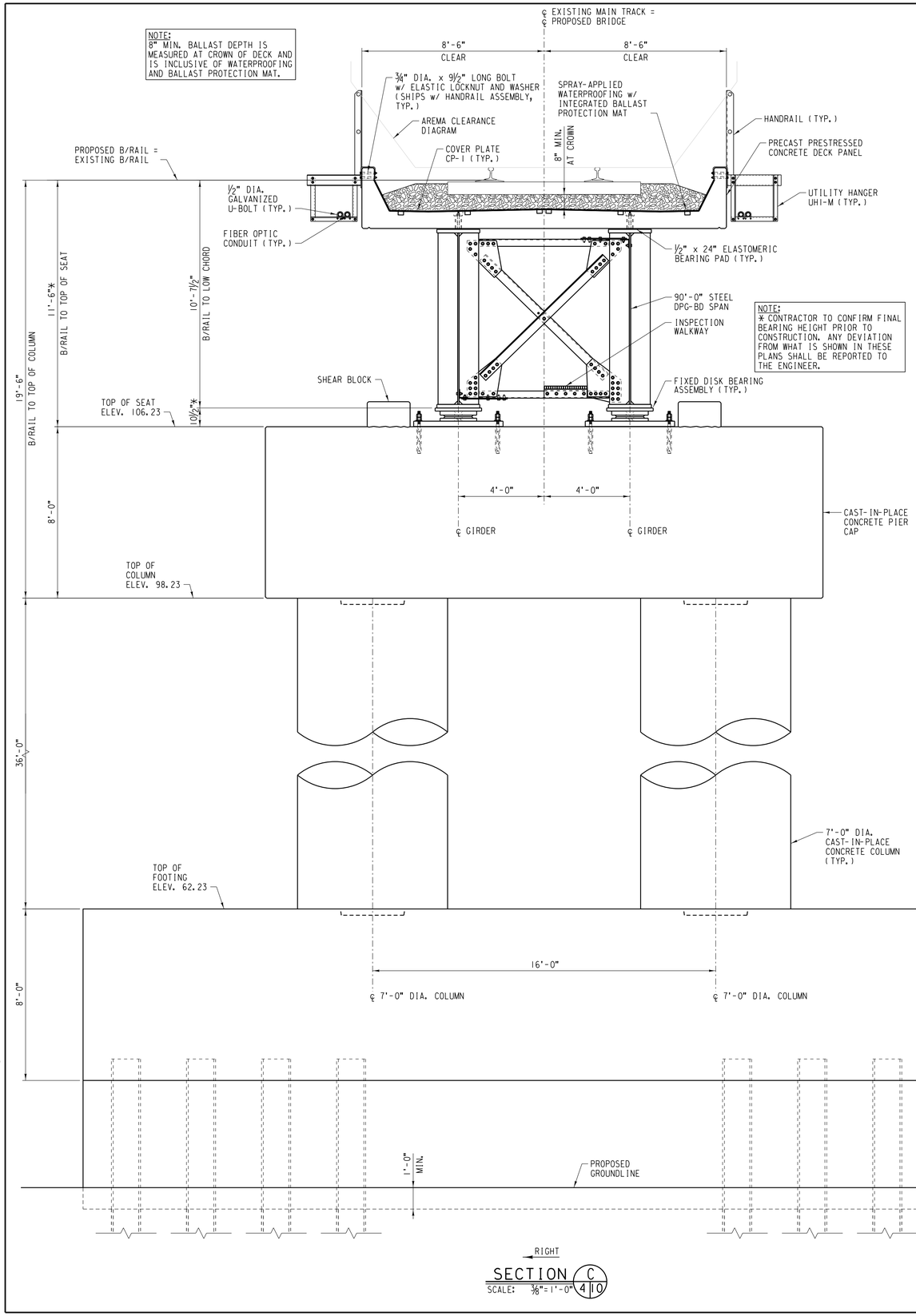
6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: TYPICAL SECTIONS AND DETAILS (SHEET 1 OF 2)

FILE NAME: pw://HDR_US.National.01/4195/10053017/wnk30488.bcca-dgn

PLOTTED: 4/21/2023 3:31:59 PM

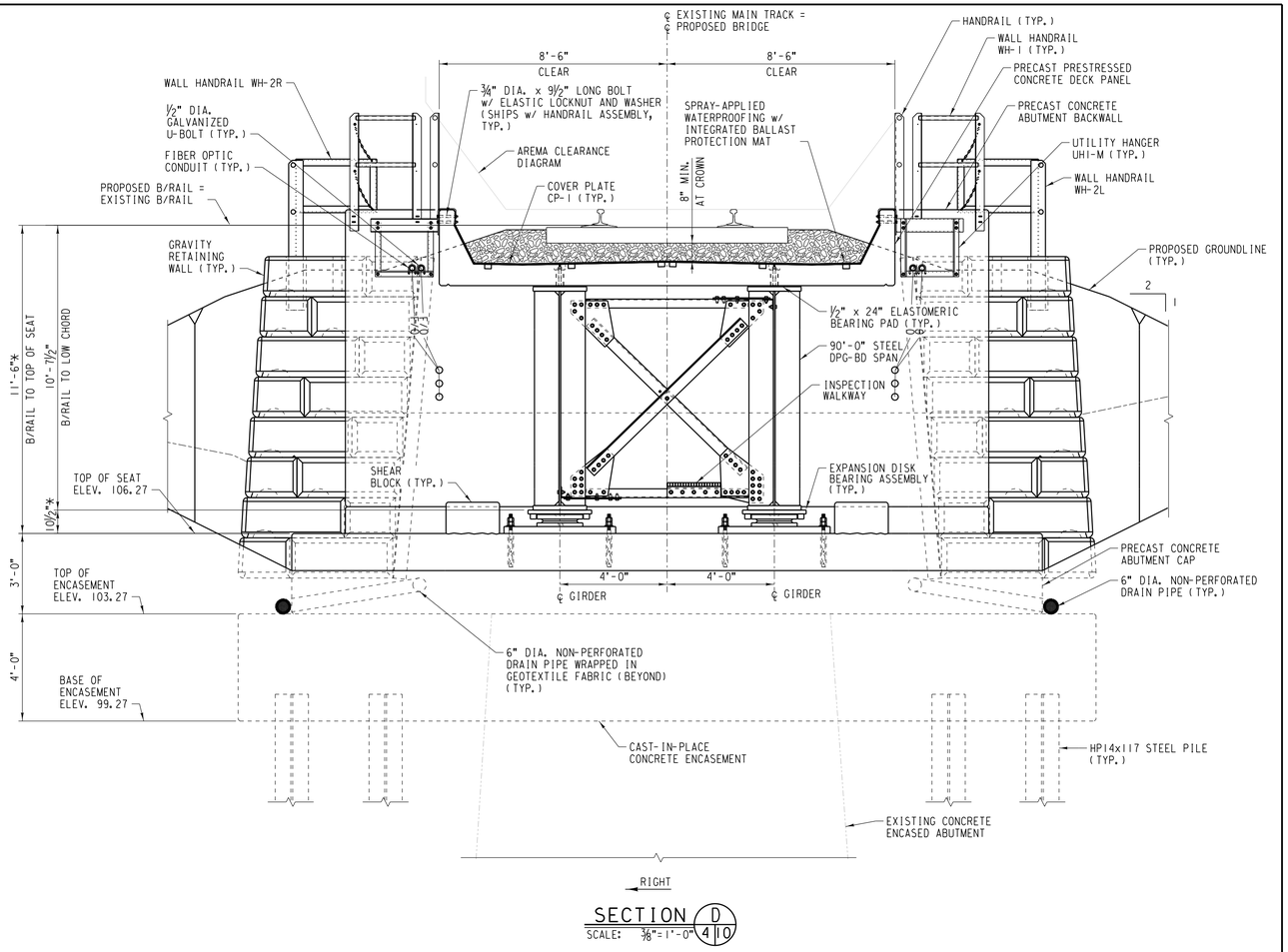
NOTE:
8" MIN. BALLAST DEPTH IS MEASURED AT CROWN OF DECK AND IS INCLUSIVE OF WATERPROOFING AND BALLAST PROTECTION MAT.



RIGHT

SECTION C
SCALE: 3/8"=1'-0" 4 10

NOTE:
* CONTRACTOR TO CONFIRM FINAL BEARING HEIGHT PRIOR TO CONSTRUCTION. ANY DEVIATION FROM WHAT IS SHOWN IN THESE PLANS SHALL BE REPORTED TO THE ENGINEER.



RIGHT

SECTION D
SCALE: 3/8"=1'-0" 4 10

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY: MJW/LAG	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/MJW	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: S10 of S37	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: TYPICAL SECTIONS AND DETAILS (SHEET 2 OF 2)

FILE NAME: pw:/HDR_US_National.01/41295/120630127/drb30488_bcda.dgn

PLOTTED: 4/21/2023 3:32:00 PM

LOGGED BY: MG DATE: START 3/16/21 END 3/17/21

STATION & OFFSET: NA, NA LATITUDE: 34.60706 LONGITUDE: -120.63606 ELEVATION (ft): 113

DRILL RIG: LAR Fraste PLG DRILL METHOD: HSA DRILLING COMPANY: Pacific Drilling BOREHOLE DEPTH (ft): 61

CASING TIP DEPTH: NA BIT DIAMETER: 8" GROUNDWATER DATA: DEPTH: DEPTH:

HAMMER TYPE: Automatic HAMMER EFFICIENCY: 88.3% NOT ENCOUNTERED [X] TIME: TIME:

CHECKED BY (DATE): EFFICIENCY MEASURED [ ] GW NOT MEASURED [ ] DATE: DATE:

ELEVATION (ft)	DEPTH (ft)	SAMPLER TYPE AND NO. / CORE RUN	FIELD BLOWS/6 in	POCKET PEN (ksf)	% FINES	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	OTHER TESTS	MATERIAL GRAPHIC	DESCRIPTION	REMARKS
110	0	B								Clayey SAND (SC); dark grayish brown; moist; coarse to fine SAND; (FILL)	
	5	S01	3 4 5							loose	
										Poorly-graded SAND with SILT (SP-SM); loose; light yellowish brown; moist; coarse to fine SAND; (ALLUVIUM)	
105		S02	25 32 27							Clayey SAND with GRAVEL (SC); very dense; grayish brown; moist; coarse to fine SAND; fine GRAVEL	
	10	S03	13 25 40								
100										SHALE; SEDIMENTARY ROCK (SHALE); yellowish brown to gray; very intensely fractured; intensely weathered; very soft; decomposes to lean CLAY (CL)	
	15										Converted to Rock Coring
		R04									No Recovery
95											Per driller, could be mix of rock and clay based on drilling behavoir
	20										losing water
		R05									No Recovery
90											losing water
	25									interlayers of decomposed (CL) and weathered to intensely weathered rock	Recovery (Rec) = 60%; Rock Quality Designation (RQD) = 20%
85	30	R06									losing water
											Pocket Penetrometer (PP) = 1.0 tons per square foot (tsf)
										light yellowish brown to gray; soft; intensely fractured to weathered; interlayers of decomposed (CL)	REC = 56%, RQD = 0%
80		R07									losing water
	35									brown to gray; slightly weathered; intensely to moderately fractured; moderately hard; few CLAY interlayers	REC = 90%; RQD = 0%
75		R08									losing water
	40									moderately to slightly fractured; hard; moderately weathered	REC = 94%; RQD = 40%
70		R09									losing water
	45										Changed drilling bit
		R10									No Recovery
65											
	50									soft; decomposed (CL); very intensely fractured	REC = 20%; RQD = 0%
60		R11									
	55										No Recovery
55		R12									

HDR BORING LOG IRVINE 2021-02 UP BRIDGE 304.89 SANTA BARBARA SUB (HONDA).GPJ FDLSOM 3-30-11.GDT 4/20/21

Boring Log

UP Bridge 304.89 Santa Barbara Sub (Honda)
Santa Barbara County, CA

Date: MAR 2021

Boring: A-21-001

ELEVATION (ft)	DEPTH (ft)	SAMPLER TYPE AND NO. / CORE RUN	FIELD BLOWS/6 in	POCKET PEN (ksf)	% FINES	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	OTHER TESTS	MATERIAL GRAPHIC	DESCRIPTION	REMARKS
	60	R13									No Recovery; bottom of bit plugged with CL
										End of boring at 61 feet below ground surface. Groundwater not encountered. Backfill with cement/bentonite grout.	

HDR BORING LOG IRVINE 2021-02 UP BRIDGE 304.89 SANTA BARBARA SUB (HONDA).GPJ FDLSOM 3-30-11.GDT 4/20/21

Boring Log

UP Bridge 304.89 Santa Barbara Sub (Honda)
Santa Barbara County, CA

Date: MAR 2021

Boring: A-21-001

NOTE:
1. SUBSURFACE INFORMATION IS PROVIDED FOR INFORMATION ONLY FROM HDR. REPORT TITLED "UP BRIDGE 304.88 (HONDA), SANTA BARBRA SUB., GEOTECHNICAL DESIGN REPORT" DATED JULY 2022. THE CONTRACTOR SHALL OBTAIN AND REVIEW A COMPLETE COPY OF THE GEOTECHNICAL ENGINEERING REPORT FROM THE OFFICE OF DIRECTOR OF STRUCTURE DESIGN.

2. BORING A-21-001:
   LAT: 34.06706°N
   LONG: -120.63606°W

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL (STATUS) 04/20/2023 (DATE)

APPROVED FOR UNION PACIFIC RAILROAD BY:
Matthew P. Dickens
CONSULTANT ENGINEER 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY: /
DRAWN/CHK BY: MAM/MJW
UPRR ENGINEER: ADS
SHT NO.: S11 of S37

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB

6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: SUBSURFACE INFORMATION (SHEET 1 OF 4)

FILE NAME: pw://HDR_US_Net1prod.01/4195/1105303/7/ark304BB_bc3a.dgn

PLOTTED: 4/21/2023 3:32:01 PM

LOGGED BY: MG DATE: START 3/15/21 END 3/15/21

STATION & OFFSET: NA, NA LATITUDE: 34.60895 LONGITUDE: -120.63557 ELEVATION (ft): 117

DRILL RIG: LAR Fraste PLG DRILL METHOD: HSA DRILLING COMPANY: Pacific Drilling BOREHOLE DEPTH (ft): 65

CASING TIP DEPTH: NA BIT DIAMETER: 8" GROUNDWATER DATA: DEPTH: DEPTH:

HAMMER TYPE: Automatic HAMMER EFFICIENCY: 88.3% NOT ENCOUNTERED [X] TIME: TIME:

CHECKED BY (DATE): EFFICIENCY MEASURED [ ] GW NOT MEASURED [ ] DATE: DATE:

ELEVATION (ft)	DEPTH (ft)	SAMPLER TYPE / NO. / CORE RUN	FIELD BLOWS/6 in	POCKET PEN (ksf)	% FINES	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	OTHER TESTS	MATERIAL GRAPHIC	DESCRIPTION	REMARKS
115	0	B								Silty SAND (SM); yellowish brown; moist; medium to fine SAND; few coarse to fine GRAVEL	
	5	S01	6 10 16							medium dense; light yellowish brown	
110		S02	5 8 11							Poorly-graded SAND (SP); medium dense; light yellowish brown; moist; medium to fine SAND	
	10	S03	9 14 21							dense	
105	15	S04	6 8 9							medium dense	
100	20	S05	7 13 27							dense	
95	25	S06	4 10 13							medium dense	
90											

HDR BORING LOG IRVINE 2021-02 UP BRIDGE 304.89 SANTA BARBARA SUB (HONDA).GPJ FDLSOM 3-30-11.GDT 4/20/21

HDR

Boring Log

UP Bridge 304.89 Santa Barbara Sub (Honda)
Santa Barbara County, CA

Date: MAR 2021

Boring: A-21-002

ELEVATION (ft)	DEPTH (ft)	SAMPLER TYPE / NO. / CORE RUN	FIELD BLOWS/6 in	POCKET PEN (ksf)	% FINES	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	OTHER TESTS	MATERIAL GRAPHIC	DESCRIPTION	REMARKS
55	60	R14									REC = 65%; RQD = 20% Losing water
	65									End of boring at 65 feet below ground surface. Groundwater not encountered. Backfill with cement/bentonite grout.	

HDR BORING LOG IRVINE 2021-02 UP BRIDGE 304.89 SANTA BARBARA SUB (HONDA).GPJ FDLSOM 3-30-11.GDT 4/20/21

HDR

Boring Log

UP Bridge 304.89 Santa Barbara Sub (Honda)
Santa Barbara County, CA

Date: MAR 2021

Boring: A-21-002

ELEVATION (ft)	DEPTH (ft)	SAMPLER TYPE / NO. / CORE RUN	FIELD BLOWS/6 in	POCKET PEN (ksf)	% FINES	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	OTHER TESTS	MATERIAL GRAPHIC	DESCRIPTION	REMARKS
85	30	S07	7 15 27							dense	
80	35	S08	6 12 17							medium dense	
75	40	S09	6 14 28							dense; dark grayish brown; trace rock fragments (<1")	
70	45	S10	7 9 22							medium dense; yellowish brown; coarse to fine SAND; few fine GRAVEL	Slower drilling starting at 46 feet bgs.
65	50	S11	50/4"							SHALE; SEDIMENTARY ROCK (SHALE); yellowish brown; soft; intensely weathered to decomposed; very intensely fractured; decomposes to clayey SAND (SC); coarse to fine SAND	Disturbed sample in bag
60	55	S12	30 50/1"							grayish brown; intensely weathered; instensely fractured	Hammer bouncing; switched to rock coring Recovery (REC) = 70%; Rock Quality Designation (RQD) = 0% Losing water
		R13									

HDR BORING LOG IRVINE 2021-02 UP BRIDGE 304.89 SANTA BARBARA SUB (HONDA).GPJ FDLSOM 3-30-11.GDT 4/20/21

HDR

Boring Log

UP Bridge 304.89 Santa Barbara Sub (Honda)
Santa Barbara County, CA

Date: MAR 2021

Boring: A-21-002

NOTE:
1. SUBSURFACE INFORMATION IS PROVIDED FOR INFORMATION ONLY FROM HDR. REPORT TITLED "UP BRIDGE 304.88 (HONDA), SANTA BARBRA SUB., GEOTECHNICAL DESIGN REPORT" DATED JULY 2022. THE CONTRACTOR SHALL OBTAIN AND REVIEW A COMPLETE COPY OF THE GEOTECHNICAL ENGINEERING REPORT FROM THE OFFICE OF DIRECTOR OF STRUCTURE DESIGN.

2. BORING A-21-002:
   LAT: 34.60895°N
   LONG: -120.63557°W

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL (STATUS) 04/20/2023 (DATE)

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
Matth. P. Dicken
CONSULTANT ENGINEER 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY: /
DRAWN/CHK BY: MAM/MJW
UPRR ENGINEER: ADS
SHT NO.: S12 of S37

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB

6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: SUBSURFACE INFORMATION (SHEET 2 OF 4)

FILE NAME: pw://HDR_US_Net1/proj_01/41295/1105303/7/mrk304SB_bc3a.dgn

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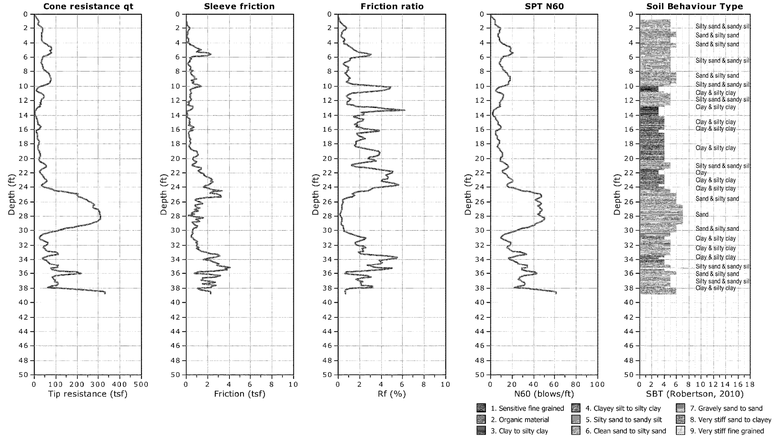
GREGG DRILLING, LLC
WWW.GREGGDRILLING.COM

CLIENT: HDR
SITE: UPRR VANDENBERG

CPT: CPT-1

FIELD REP: MATT
Elevation: 0
Cone ID: GDSC-5
Lat/Lon: Unknown/Unknown

Total depth: 38.71 ft, Date: 12/7/2021



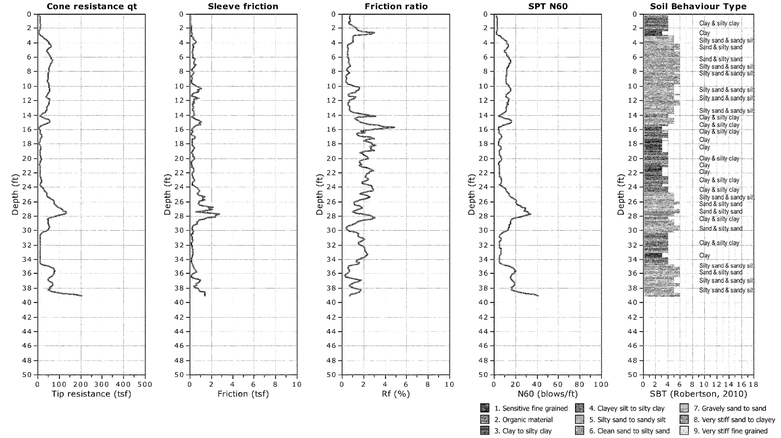
GREGG DRILLING, LLC
WWW.GREGGDRILLING.COM

CLIENT: HDR
SITE: UPRR VANDENBERG

CPT: CPT-2

FIELD REP: MATT
Elevation: 0
Cone ID: GDC-59
Lat/Lon: Unknown/Unknown

Total depth: 39.04 ft, Date: 12/7/2021



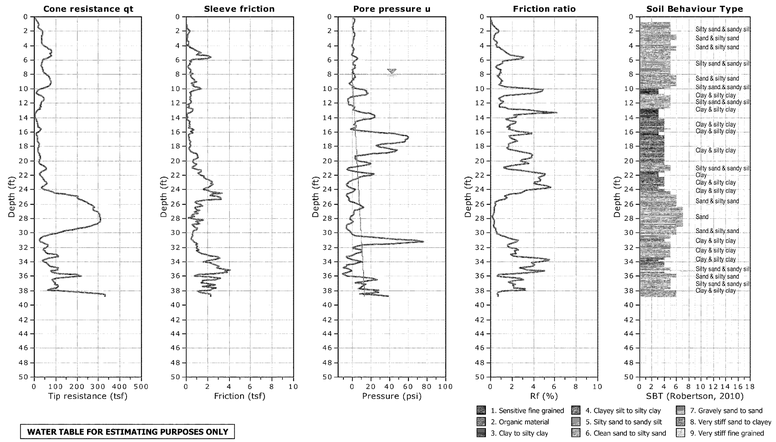
GREGG DRILLING, LLC
WWW.GREGGDRILLING.COM

CLIENT: HDR
SITE: UPRR VANDENBERG

CPT: CPT-1

FIELD REP: MATT
Elevation: 0
Cone ID: GDSC-5
Lat/Lon: Unknown/Unknown

Total depth: 38.71 ft, Date: 12/7/2021



WATER TABLE FOR ESTIMATING PURPOSES ONLY

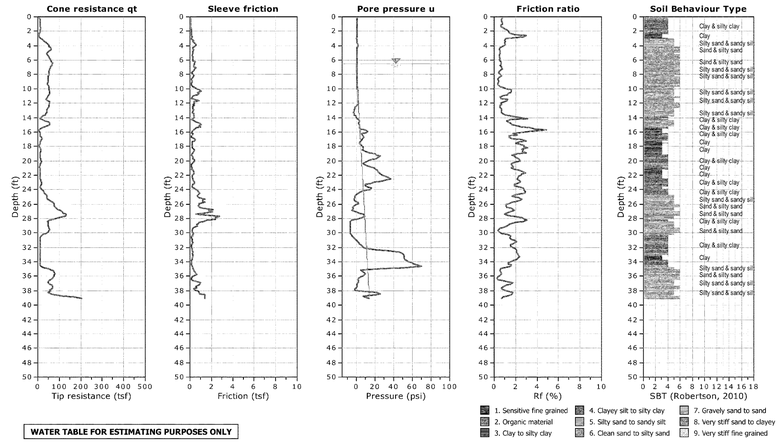
GREGG DRILLING, LLC
WWW.GREGGDRILLING.COM

CLIENT: HDR
SITE: UPRR VANDENBERG

CPT: CPT-2

FIELD REP: MATT
Elevation: 0
Cone ID: GDC-59
Lat/Lon: Unknown/Unknown

Total depth: 39.04 ft, Date: 12/7/2021



WATER TABLE FOR ESTIMATING PURPOSES ONLY

NOTE:
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2. CPT LATITUDE AND LONGITUDE NOT PROVIDED BY DRILLING CONTRACTOR. APPROXIMATE LOCATION OF CPT'S IS PROVIDED ON SHEETS S2-S4.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

APPROVED FOR UNION PACIFIC RAILROAD BY:
Matthew P Dicken — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

DSN/CHK BY: /	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/MJW	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: S13 of S37	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: SUBSURFACE INFORMATION (SHEET 3 OF 4)

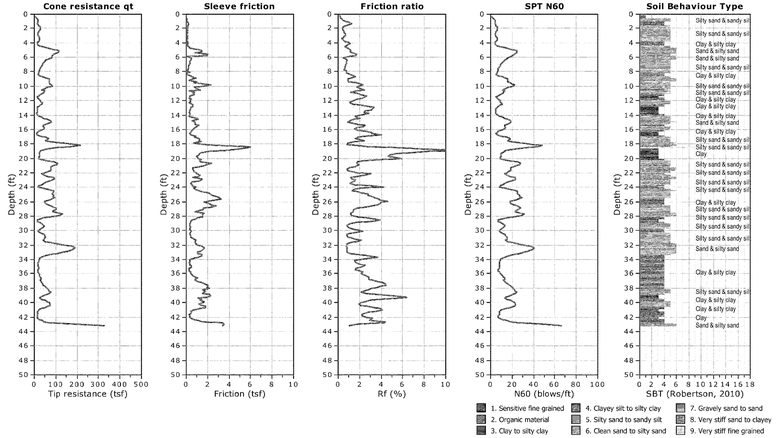
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GREGG DRILLING, LLC
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CLIENT: HDR
SITE: UPRR VANDENBERG

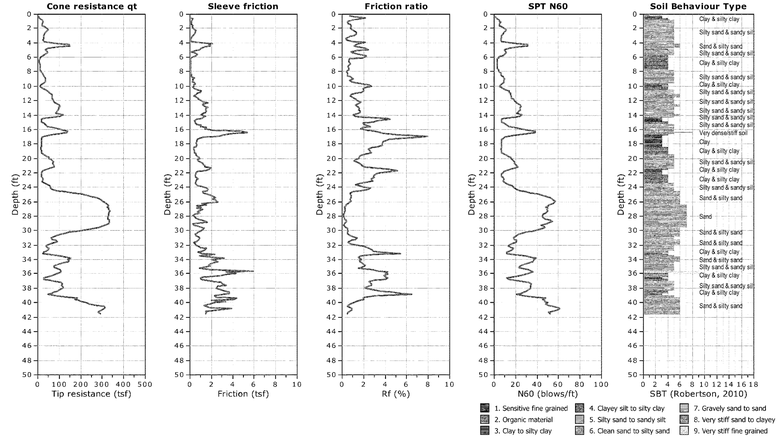
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FIELD REP: MATT
Elevation: 0
Cone ID: GDC-59
Lat/Lon: Unknown/Unknown
Total depth: 43.14 ft, Date: 12/7/2021



GREGG DRILLING, LLC
WWW.GREGGDRILLING.COM

CLIENT: HDR
SITE: UPRR VANDENBERG

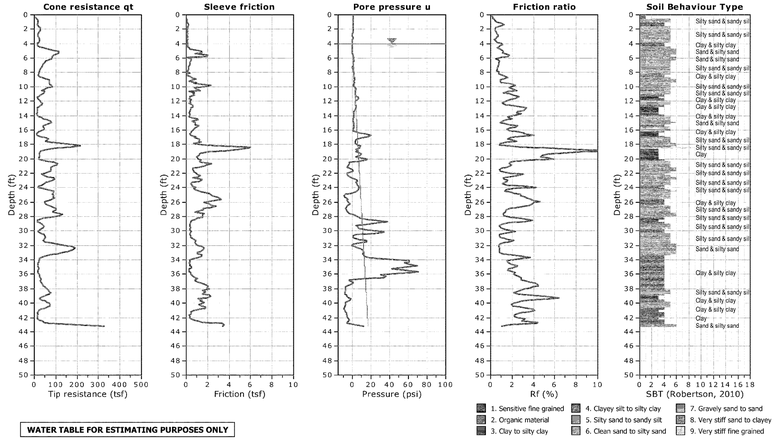
CPT: CPT-4
FIELD REP: MATT
Elevation: 0
Cone ID: GDC-59
Lat/Lon: Unknown/Unknown
Total depth: 41.50 ft, Date: 12/7/2021



GREGG DRILLING, LLC
WWW.GREGGDRILLING.COM

CLIENT: HDR
SITE: UPRR VANDENBERG

CPT: CPT-3
FIELD REP: MATT
Elevation: 0
Cone ID: GDC-59
Lat/Lon: Unknown/Unknown
Total depth: 43.14 ft, Date: 12/7/2021

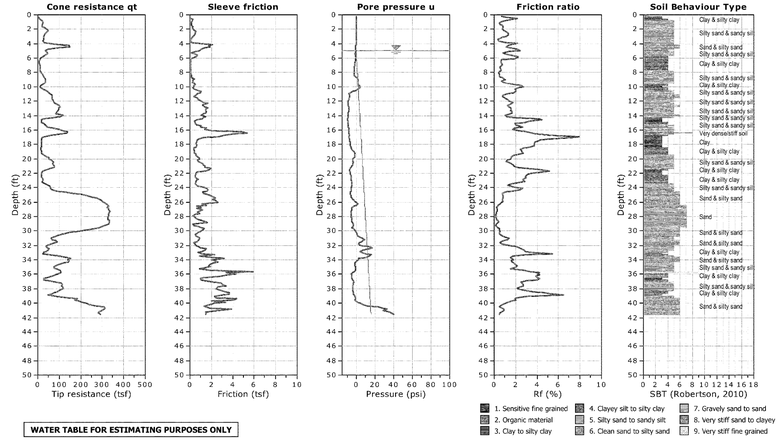


WATER TABLE FOR ESTIMATING PURPOSES ONLY

GREGG DRILLING, LLC
WWW.GREGGDRILLING.COM

CLIENT: HDR
SITE: UPRR VANDENBERG

CPT: CPT-4
FIELD REP: MATT
Elevation: 0
Cone ID: GDC-59
Lat/Lon: Unknown/Unknown
Total depth: 41.50 ft, Date: 12/7/2021



WATER TABLE FOR ESTIMATING PURPOSES ONLY

NOTE:
1. SUBSURFACE INFORMATION IS PROVIDED FOR INFORMATION ONLY FROM HDR. REPORT TITLED "UP BRIDGE 304.88 (HONDA), SANTA BARBRA SUB., GEOTECHNICAL DESIGN REPORT" DATED JULY 2022. THE CONTRACTOR SHALL OBTAIN AND REVIEW A COMPLETE COPY OF THE GEOTECHNICAL ENGINEERING REPORT FROM THE OFFICE OF DIRECTOR OF STRUCTURE DESIGN.

2. CPT LATITUDE AND LONGITUDE NOT PROVIDED BY DRILLING CONTRACTOR. APPROXIMATE LOCATION OF CPT'S IS PROVIDED ON SHEETS S2-S4.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

APPROVED FOR UNION PACIFIC RAILROAD BY:
Matthew P Dicken — CONSULTANT ENGINEER — 04/20/2023 DATE

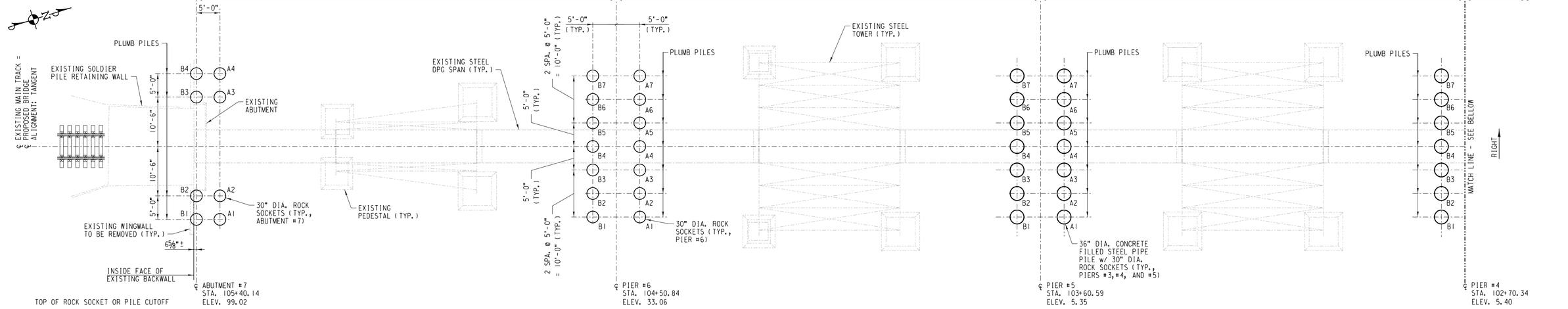
PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

DSN/CHK BY: /	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/MJW	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: S14 of S37	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: SUBSURFACE INFORMATION (SHEET 4 OF 4)

FILE NAME: pw://HDR_US_National_OU/41951/10263017/sht30488_bca.dgn

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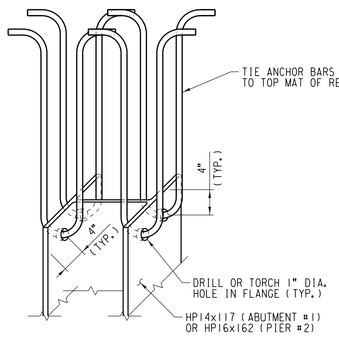
FOUNDATION PLAN

SCALE: 1"=10'-0"

FOUNDATION TABLE

LOCATION	FOUNDATION TYPE ABOVE ROCK	FOUNDATION TYPE IN ROCK	TOP OF ROCK SOCKET OR PILE CUTOFF	ESTIMATED TIP DEPTH (FROM B/FOOTING) (FT.)	MINIMUM ROCK SOCKET LENGTH (FT.)	REQ'D ALLOWABLE CAPACITY	
						COMPRESSION	TENSION
ABUTMENT #1	16-HP14x117	16-HP14x117	100.27	45	-	146 TON	81 TON
PIER #2	20-HP16x162	20-HP16x162	55.23	43	-	302 TON	87 TON
PIER #3	14-36" DIA. CFSP	14-30" DIA. SOCKET	5.44	60	28	698 TON	410 TON
PIER #4	14-36" DIA. CFSP	14-30" DIA. SOCKET	5.40	60	28	698 TON	410 TON
PIER #5	14-36" DIA. CFSP	14-30" DIA. SOCKET	5.35	60	28	698 TON	410 TON
PIER #6	-	14-30" DIA. SOCKET	33.06	26	26	504 TON	311 TON
ABUTMENT #7	-	8-30" DIA. SOCKET	99.02	15	15	232 TON	112 TON

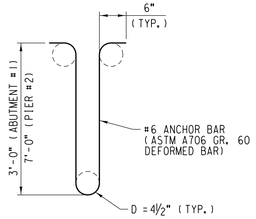
CFSP = CONCRETE FILLED STEEL PIPE
B/FOOTING = BASE OF FOOTING



PILE ANCHORAGE DETAIL

SCALE: 1"=1'-0"

(ABUTMENT #1 AND PIER #2)



ANCHOR BAR DETAIL

SCALE: ¾"=1'-0"

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL — STATUS — 04/20/2023 DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:

Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S15 of S37

UNION PACIFIC RAILROAD

Office of Director Structures Design

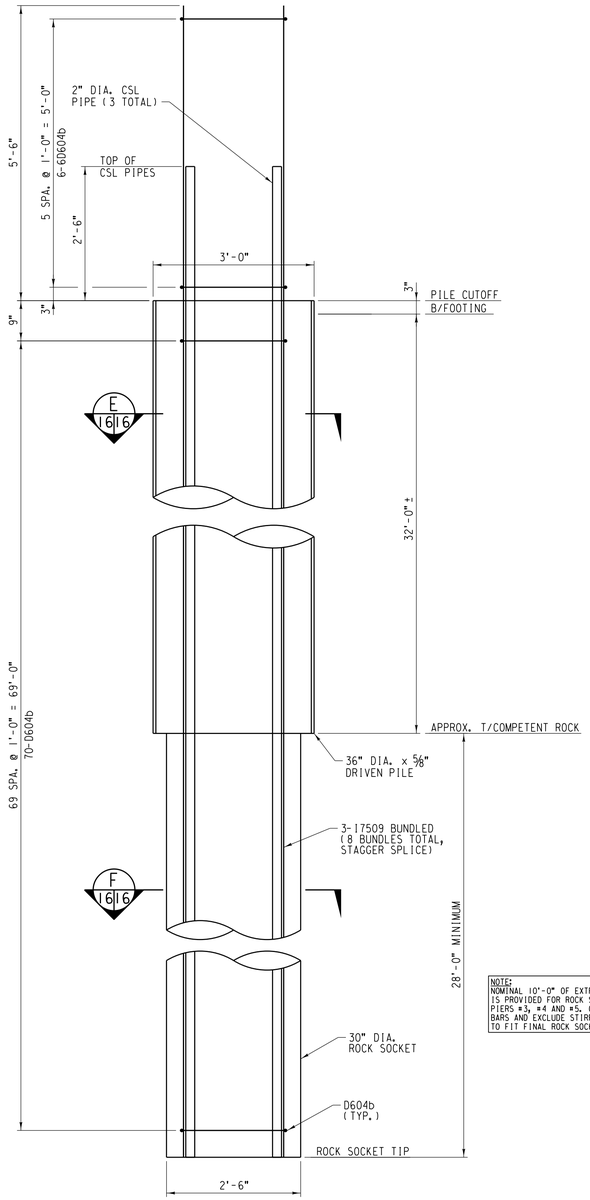
LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB

6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: FOUNDATION PLAN

FILE NAME: pw://ADR.US.Nationall.DJ/4139/10263027/ex630488_bca.dgn

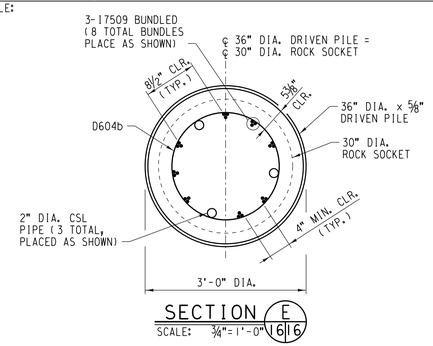
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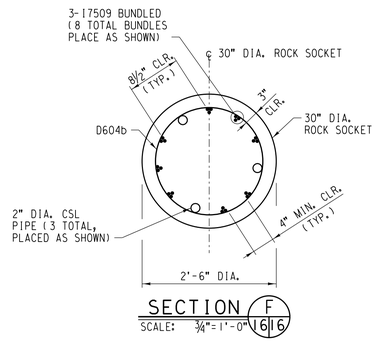
NOTE:
NOMINAL 10'-0" OF EXTRA REINFORCING IS PROVIDED FOR ROCK SOCKETS AT PIERS #3, #4 AND #5. CUT LONGITUDINAL BARS AND EXCLUDE STIRRUPS AS REQUIRED TO FIT FINAL ROCK SOCKET LENGTH.

PIERS #3, #4 AND #5 ROCK SOCKET DETAIL

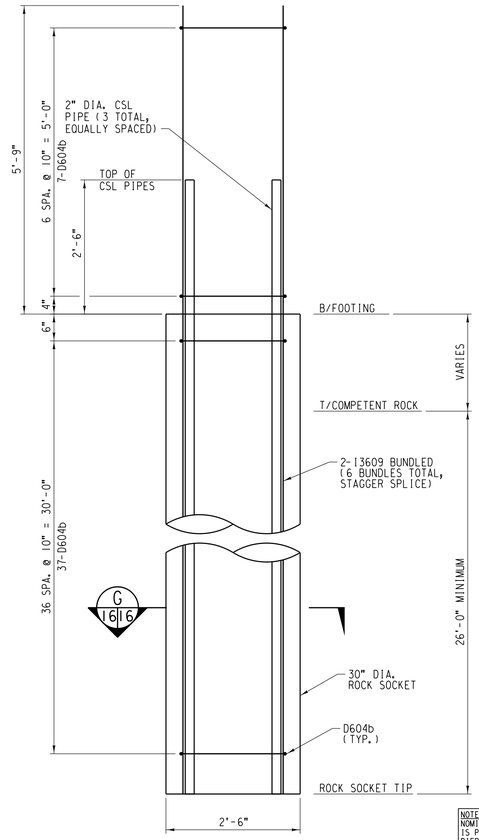
SCALE: 3/4"=1'-0"



SECTION E (16|16)
SCALE: 3/4"=1'-0"



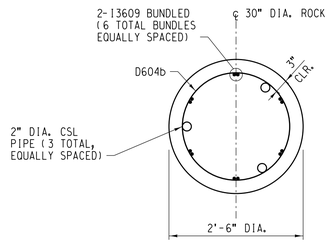
SECTION F (16|16)
SCALE: 3/4"=1'-0"



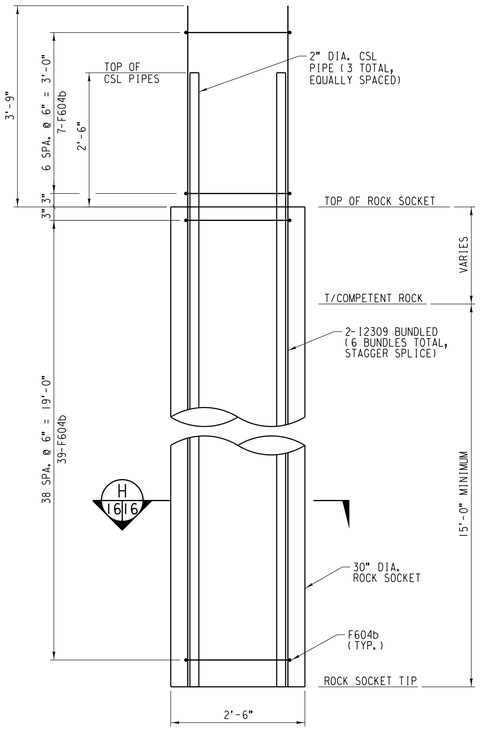
NOTE:
NOMINAL 5'-0" OF EXTRA REINFORCING IS PROVIDED FOR ALL ROCK SOCKETS AT PIER #6 AND ABUTMENT #7. CUT LONGITUDINAL BARS AND EXCLUDE STIRRUPS AS REQUIRED TO FIT FINAL ROCK SOCKET LENGTH.

PIER #6 ROCK SOCKET DETAIL

SCALE: 3/4"=1'-0"

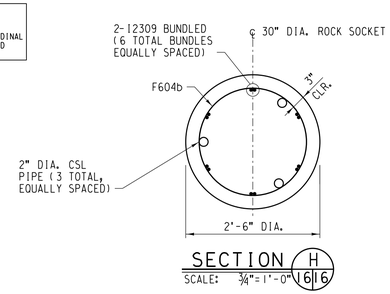


SECTION G (16|16)
SCALE: 3/4"=1'-0"



ABUTMENT #7 ROCK SOCKET DETAIL

SCALE: 3/4"=1'-0"



SECTION H (16|16)
SCALE: 3/4"=1'-0"

REINFORCING SCHEDULE
(PIERS #3, #4 AND #5)

TOTAL	PER PIER	PER SOCKET	MARK	SIZE	LENGTH	SHAPE
3,192	1,064	76	D604b	#5	6'-4"	○
1,008	336	24	I7509	#10	75'-9"	—

EST. WT. OF REINFORCING STEEL PER SOCKET = 8,325 LB.
EST. WT. OF REINFORCING STEEL PER PIER = 116,550 LB.
TOTAL EST. WT. OF REINFORCING STEEL = 349,650 LB.

REINFORCING SCHEDULE
(PIER #6)

TOTAL	PER SOCKET	MARK	SIZE	LENGTH	SHAPE
616	44	D604b	#5	6'-4"	○
168	12	I3609	#10	36'-9"	—

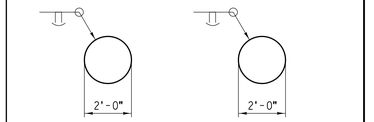
EST. WT. OF REINFORCING STEEL PER SOCKET = 2,190 LB.
TOTAL EST. WT. OF REINFORCING STEEL = 30,660 LB.

REINFORCING SCHEDULE
(ABUTMENT #7)

TOTAL	PER SOCKET	MARK	SIZE	LENGTH	SHAPE
368	46	F604b	#7	6'-4"	○
96	12	I2309	#10	23'-9"	—

EST. WT. OF REINFORCING STEEL PER SOCKET = 1,825 LB.
TOTAL EST. WT. OF REINFORCING STEEL = 14,600 LB.

BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)



NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.

MATERIAL SCHEDULE
(PIERS #3, #4 AND #5)

REQ'D	UNIT	DESCRIPTION
571	CU. YD.	5,000 PSI CONCRETE FOR ROCK SOCKETS (PER NOTES, SHEET NO. S7 AND DETAILS, THIS SHEET)
1	LOT	REINFORCING STEEL FOR ROCK SOCKETS (PER NOTES, SHEET NO. S7 AND SCHEDULE, THIS SHEET)
1,386	LF	36" DIA. x 5/8" STEEL CASING (PER NOTES, SHEET NO. S7 AND DETAILS, THIS SHEET)

MATERIAL SCHEDULE
(PIER #6)

REQ'D	UNIT	DESCRIPTION
79	CU. YD.	5,000 PSI CONCRETE FOR ROCK SOCKETS (PER NOTES, SHEET NO. S7 AND DETAILS, THIS SHEET)
1	LOT	REINFORCING STEEL FOR ROCK SOCKETS (PER NOTES, SHEET NO. S7 AND SCHEDULE, THIS SHEET)

MATERIAL SCHEDULE
(ABUTMENT #7)

REQ'D	UNIT	DESCRIPTION
30	CU. YD.	5,000 PSI CONCRETE FOR ROCK SOCKETS (PER NOTES, SHEET NO. S7 AND DETAILS, THIS SHEET)
1	LOT	REINFORCING STEEL FOR ROCK SOCKETS (PER NOTES, SHEET NO. S7 AND SCHEDULE, THIS SHEET)

NOTES:
1. SEE SHEET NO. S15 FOR TOP OF ROCK SOCKET AND PILE CUTOFF ELEVATIONS.
2. MECHANICAL SPLICE AS REQUIRED FOR LONGITUDINAL BARS. STAGGER SPLICE WITHIN BUNDLE 2'-0".
3. ORIENT REBAR TO ACCOMODATE FOOTING OR ENCASEMENT REINFORCING.

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

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UNION PACIFIC

DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S16 of S37

UNION PACIFIC RAILROAD
Office of Director Structures Design

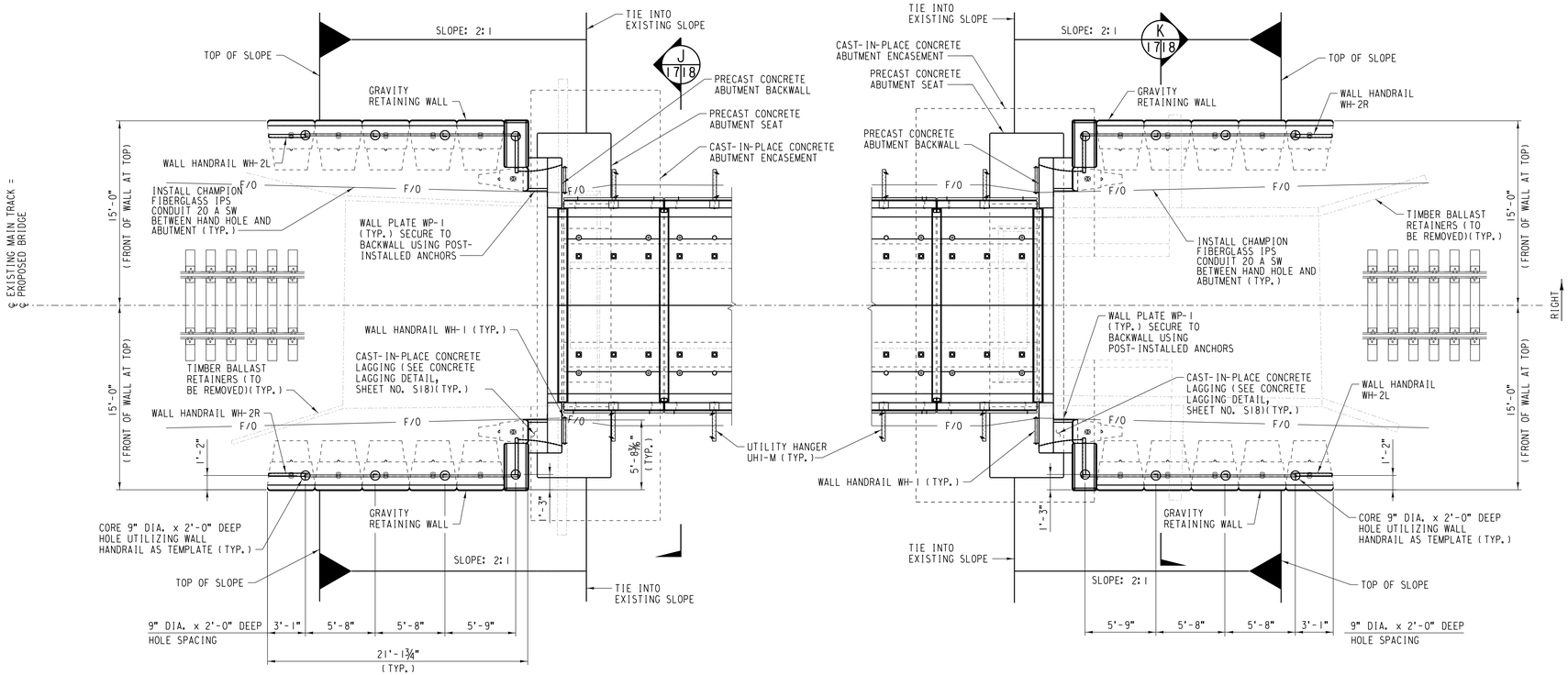
LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB

6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

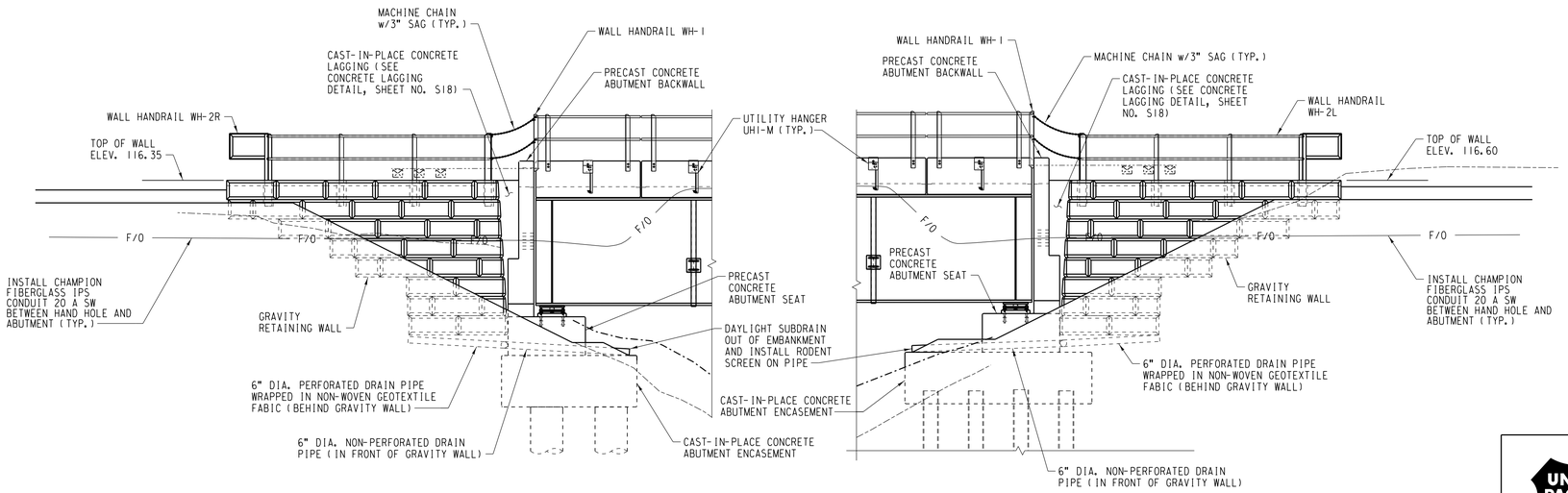
SHEET TITLE: FOUNDATION DETAILS

FILE NAME: pw:\\HDR_US_National.01\41951105303\\nrd30488_bnda.dgn

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PLAN
SCALE: 3/16"=1'-0"



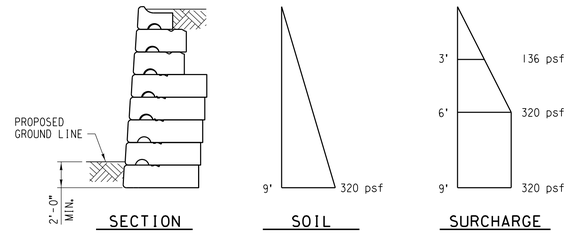
ELEVATION
SCALE: 3/16"=1'-0"

WALL NOTES:

1. Gravity wall geometry is based on 2:1 slopes for final grade.
2. Abutment approach structures to remain in place with curbs removed to top of subballast.
3. Wall to be constructed in conjunction with abutment construction.
4. Utilites to be located between existing structure and retaining wall.
5. Install utility conduit from hand hole to backwall during wall construction.

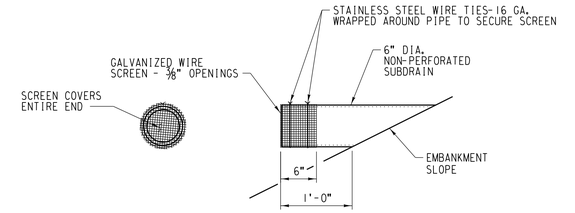
WALL DESIGN LOADS:

Design section of wall is based on height of wall at ⅓ point of wall.



WALL CONSTRUCTION SEQUENCE:

1. Remove existing retaining walls as required for wall construction.
2. Excavate as required for wall construction.
3. Construct wall per manufacturer's specifications.
4. During wall construction install drain and fiber optic conduits as required in fill behind wall.
5. Construct cast in place lagging.



RODENT SCREEN DETAIL
SCALE: NONE

NOTES:
1. GRAVITY WALL SHALL BE PROVIDED BY REDI-ROCK OR APPROVED ALTERNATE.
2. WALL CONSTRUCTION DETAILS SHALL BE PER MAUNFACTURER'S SPECIFICATIONS AND DETAILS EXCEPT AS SHOWN IN THESE DETAILS.
3. APPROXIMATE LOCATION OF CORE HOLES FOR WALL HANDRAILS SHOWN. CONTRACTOR TO VERIFY LOCATION PRIOR TO CORING HOLES.

NO.	DATE	REVISIONS
	/ /	
	/ /	

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Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

Nathan P. Dickerson 4-20-23
REGISTERED PROFESSIONAL ENGINEER — NATHAN P. DICKERSON — No. C71974 — Exp. 12/31/23 — CIVIL — STATE OF CALIFORNIA

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DSN/CHK BY:	LAG/MJW
DRAWN/CHK BY:	MAM/LAG
UPRR ENGINEER:	ADS
SHT NO.:	S17 of S37

UNION PACIFIC RAILROAD
Office of Director Structures Design

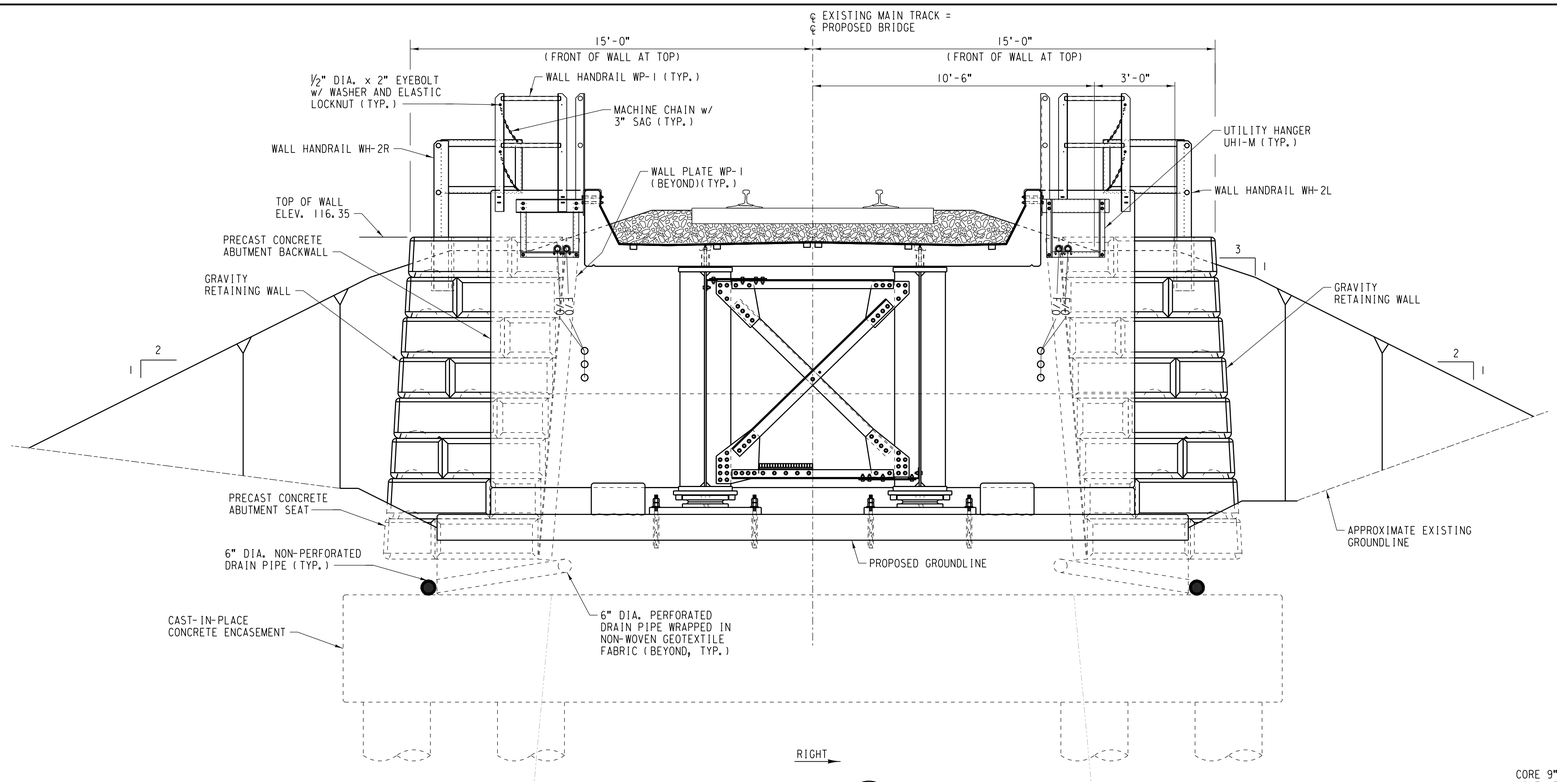
LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB

6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: RETAINING WALL CONSTRUCTION DETAILS (SHEET 1 OF 2)

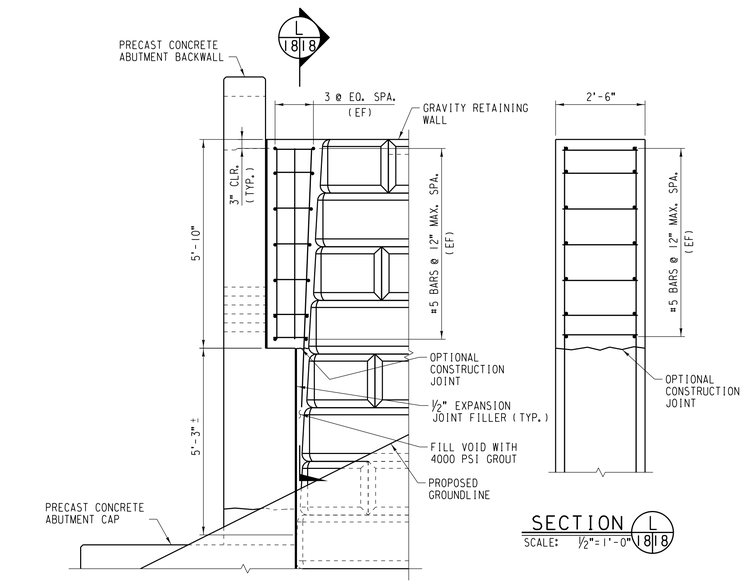
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RIGHT

SECTION J
SCALE: ⅜"=1'-0" L 18 18

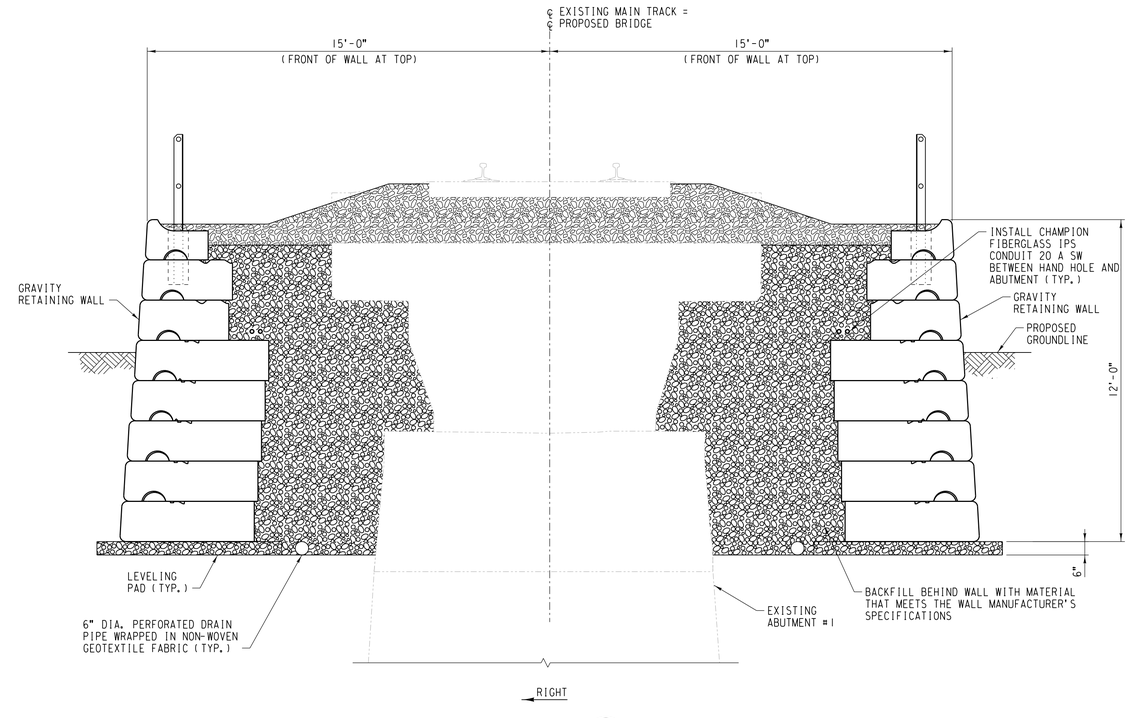


SECTION L 18 18
SCALE: ½"=1'-0"

CAST-IN-PLACE CONCRETE LAGGING DETAIL

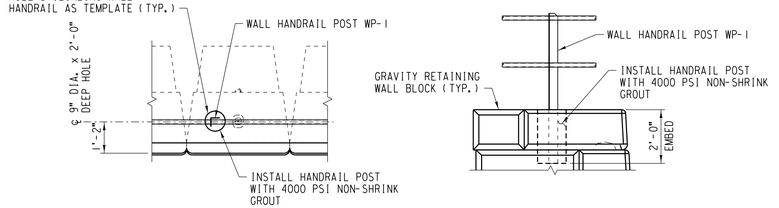
SCALE: ½"=1'-0"

(HANDRAIL NOT SHOWN FOR CLARITY)



RIGHT

SECTION K
SCALE: ⅜"=1'-0" L 17 18



PLAN ELEVATION

HANDRAIL POST INSTALLATION DETAIL

SCALE: ⅜"=1'-0"

(WALL HANDRAIL POST WP-1 SHOWN, WALL HANDRAIL POST WP-2R AND WP-2L SIMILAR)

NOTE:
WALL CONSTRUCTION DETAILS SHALL BE PER MAUNFACTURER'S SPECIFICATIONS EXCEPT AS SHOWN IN THESE DETAILS.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL (STATUS) 04/20/2023 (DATE)

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CONSULTANT ENGINEER 04/20/2023 (DATE)

Nathan P. Dickerson 4-20-23
REGISTERED PROFESSIONAL ENGINEER NATHAN P. DICKERSON No. C71974 Exp. 12/31/23 CIVIL STATE OF CALIFORNIA

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UNION PACIFIC

DSN/CHK BY: LAG/MJW
DRAWN/CHK BY: MAM/LAG
UPRR ENGINEER: ADS
SHT NO.: S18 of S37

UNION PACIFIC RAILROAD
Office of Director Structures Design

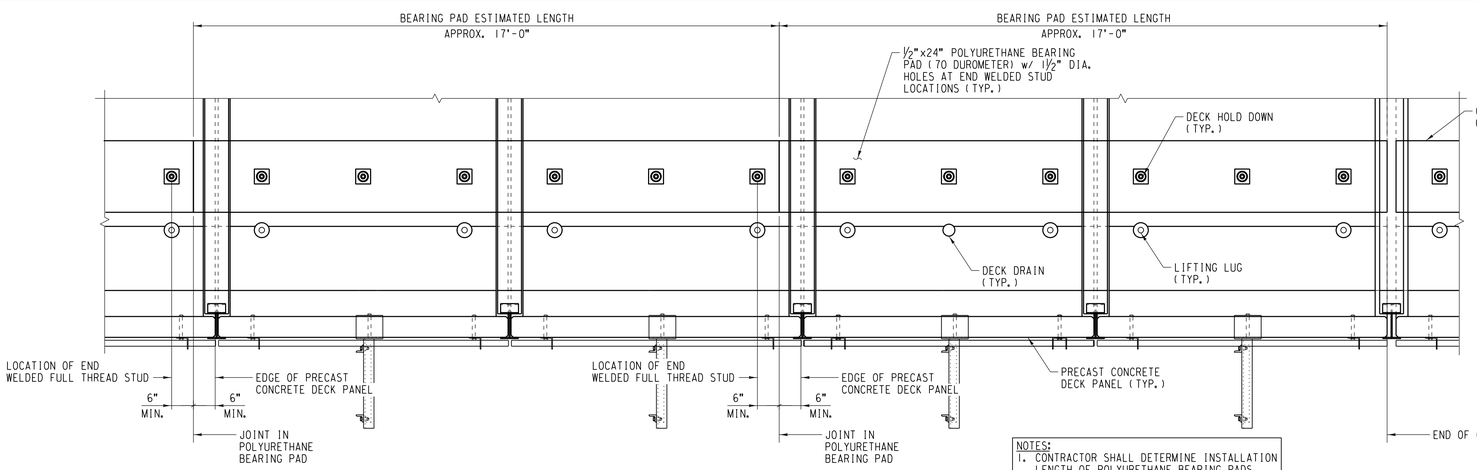
LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB

6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: RETAINING WALL CONSTRUCTION DETAILS (SHEET 2 OF 2)

FILE NAME: pw://HDR.US.Nat1.ora1.01/4195/105503/wk36488_bca.dgn

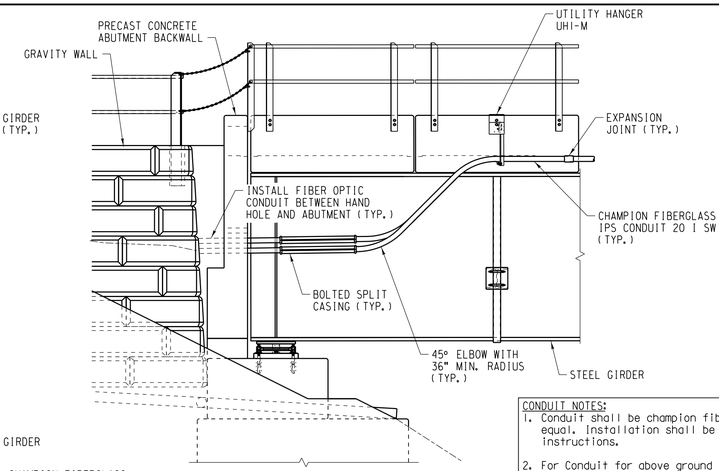
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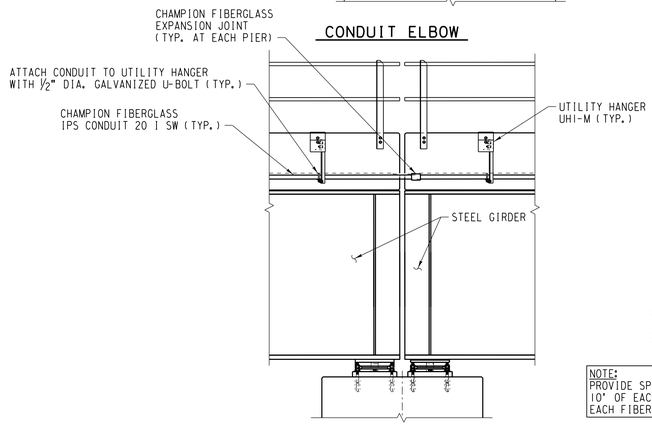
BEARING PAD JOINT DETAIL

SCALE: ½"=1'-0"

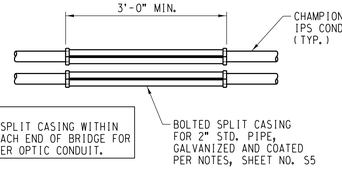
NOTES:
1. CONTRACTOR SHALL DETERMINE INSTALLATION LENGTH OF POLYURETHANE BEARING PADS. JOINTS BETWEEN PADS SHALL BE LOCATED A MINIMUM OF 6" FROM PANEL ENDS AND END WELDED STUDS.
2. CONDUIT NOT SHOWN FOR CLARITY.



CONDUIT ELBOW



EXPANSION JOINT



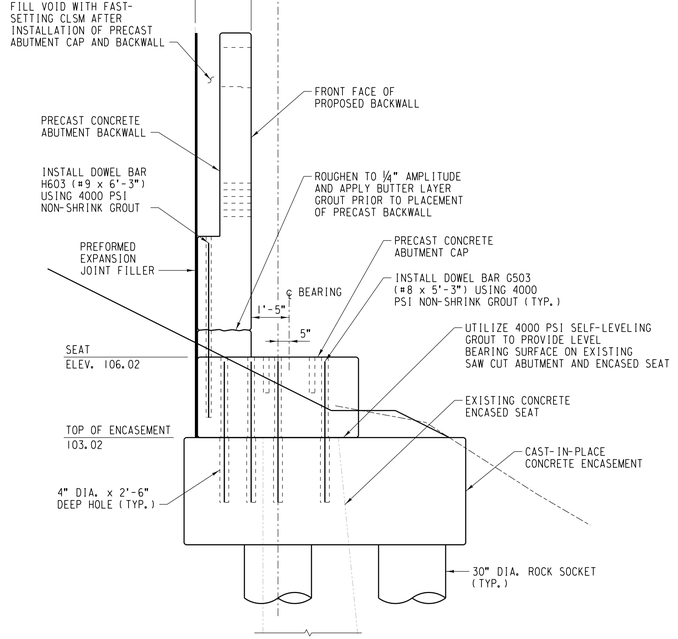
NOTE: PROVIDE SPLIT CASING WITHIN 10' OF EACH END OF BRIDGE FOR EACH FIBER OPTIC CONDUIT.

BOLTED SPLIT CASING

CONDUIT NOTES:
1. Conduit shall be champion fiberglass conduit or approved equal. Installation shall be per the manufacturer's instructions.
2. For Conduit for above ground use CHAMPION FIBERGLASS IPS CONDUIT, item number series 20 I SW, and matching fittings.
3. Expansion joints shall be provided adjacent to each pier and at ends of bridge.
4. Split anchor rings shall be used at 200' max spacing to create fixed points in the conduit.
5. For conduit for below ground use CHAMPION FIBERGLASS IPS CONDUIT, item number series 20 A SW, and matching fittings.
6. The item number "20" refers to conduit size and is the same size as 2" diameter std pipe.
7. At least two weeks prior to ordering material, contractor shall submit layout showing proposed conduit alignment, installation procedures, and location of expansion joints, split anchor rings, and split casing. Submittal shall be reviewed and approved by UPRR and all Fiber Optic stakeholders.

FIBER OPTIC CONDUIT DETAILS

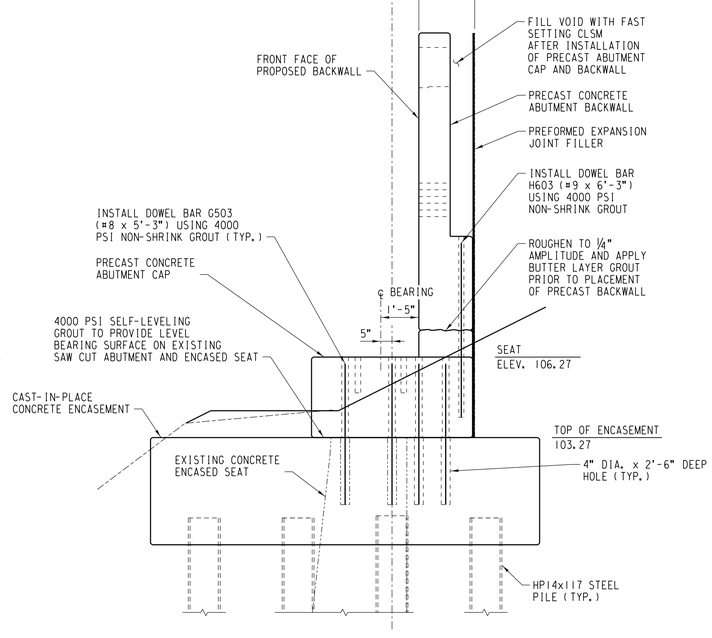
SCALE: NO SCALE



PRECAST ABUTMENT #7 CAP AND BACKWALL INSTALLATION DETAIL

SCALE: ⅜"=1'-0"

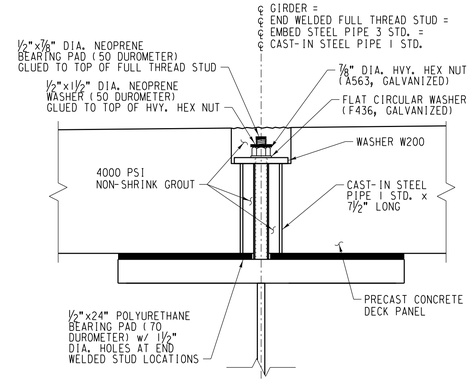
(RETAINING WALL NOT SHOWN FOR CLARITY)



PRECAST ABUTMENT #1 CAP AND BACKWALL INSTALLATION DETAIL

SCALE: ⅜"=1'-0"

(RETAINING WALL NOT SHOWN FOR CALRITY)



DECK HOLD DOWN DETAIL

SCALE: NONE

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER — NATHAN P. DICKERSON — No. C71974 — Exp. 12/31/23 — CIVIL — STATE OF CALIFORNIA

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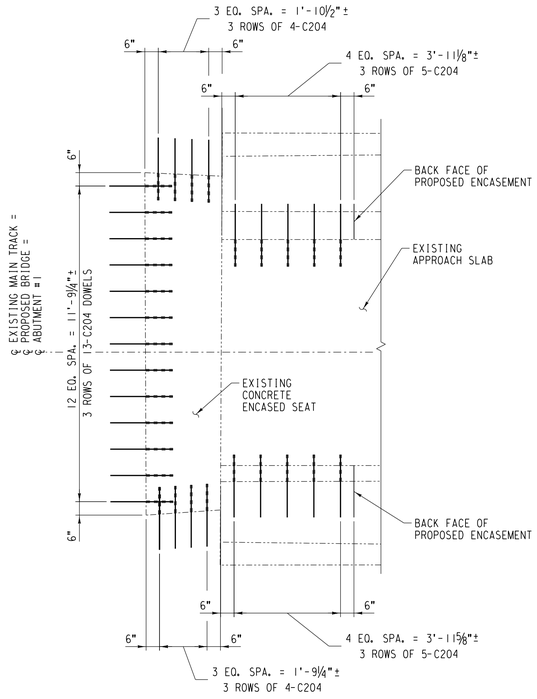
LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

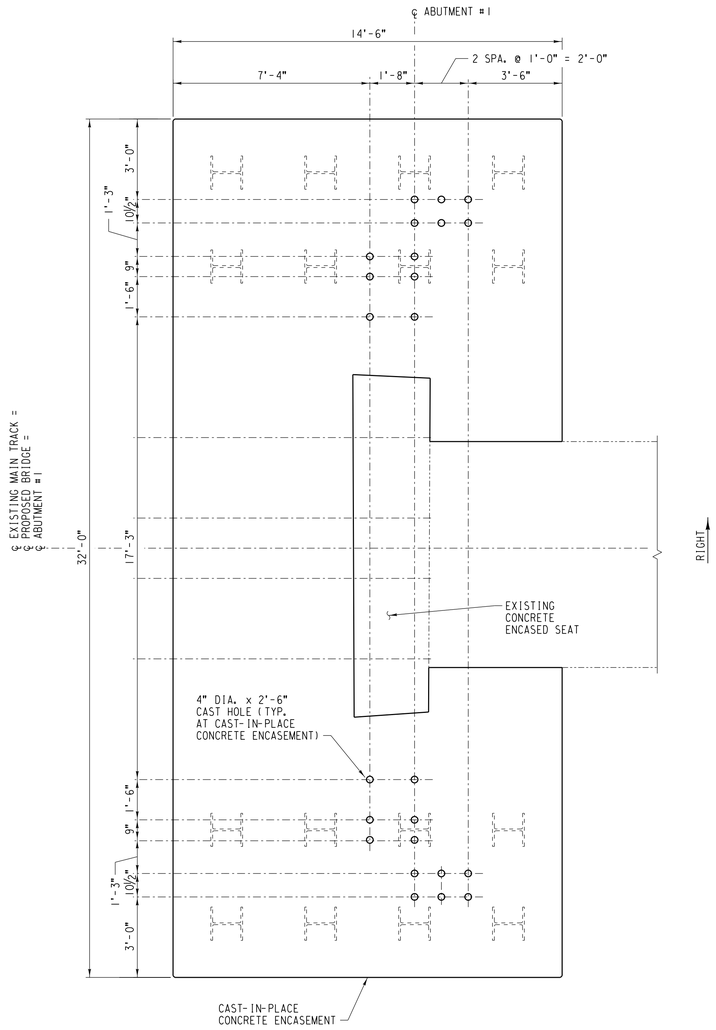
DSN/CHK BY: MJW/LAG	**UNION PACIFIC RAILROAD** — Office of Director Structures Design
DRAWN/CHK BY: MAM/MJW	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
UPRR ENGINEER: ADS	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
SHT NO.: S19 of S37	SHEET TITLE: CONSTRUCTION DETAILS

FILE NAME: pw://HDR_US.National.DO/41395/10263027/sht30488.bcd.dgn

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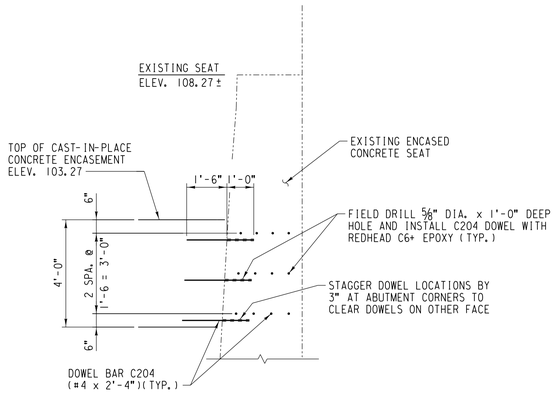
PLAN



ABUTMENT # 1 FRAMING PLAN

SCALE: ⅜"=1'-0"

(EXISTING APPROACH SLAB
NOT SHOWN FOR CLARITY)



ELEVATION

ABUTMENT # 1 DOWEL LOCATION DETAIL

SCALE: ⅜"=1'-0"

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APPROVED FOR UNION PACIFIC RAILROAD BY:

Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

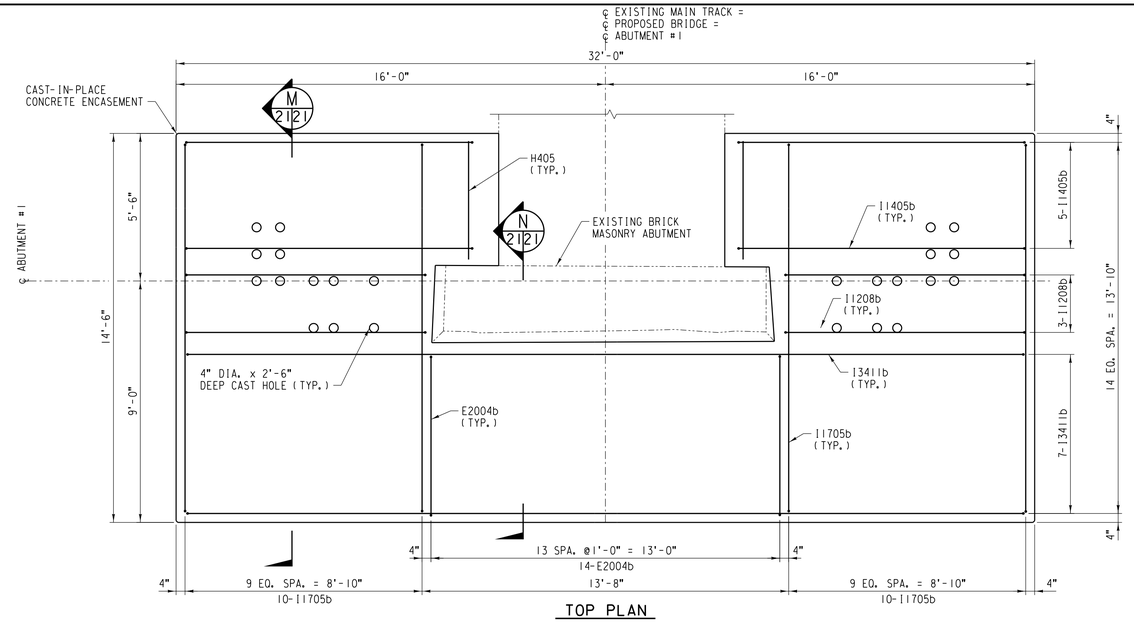
PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

DSN/CHK BY: MJW/LAG	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/MJW	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: S20 of S37	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: ABUTMENT #1 DETAILS (SHEET 1 OF 3)

FILE NAME: pw:/HDR_US_National_01/41951/D0503017/wrk30488_bca.dgn

PLOTTED: 4/21/2023 3:32:14 PM



TOP PLAN

MATERIAL SCHEDULE
(ABUTMENT #1)

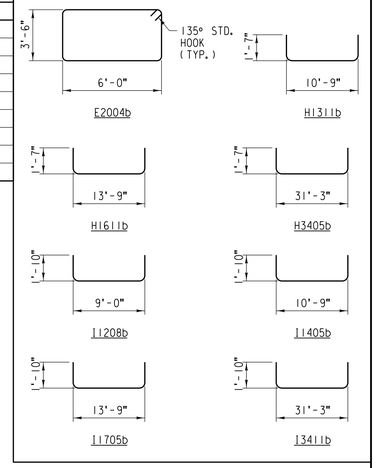
REQ'D	UNIT	DESCRIPTION
63	CU. YD.	5,000 PSI CONCRETE FOR ENCASEMENT (PER NOTES, SHEET NO. S5 AND DETAILS, THIS SHEET)
1	LOT	REINFORCING STEEL FOR ENCASEMENT (PER NOTES, SHEET NO. S5 AND SCHEDULE, THIS SHEET)
93	EA.	DOWEL BAR C204 (#4 x 2'-4") ASTM A706, GR. 60
32	EA.	DOWEL BAR G503 (#8 x 5'-3") ASTM A706, GR. 60
32	EA.	DOWEL BAR H603 (#9 x 6'-3") ASTM A706, GR. 60

REINFORCING SCHEDULE
(ABUTMENT #1 ENCASEMENT)

TOTAL	MARK	SIZE	LENGTH	SHAPE
14	E2004b	#6	20'-4"	
4	H405	#9	4'-5"	
8	H1311b	#9	13'-11"	
8	H1611b	#9	16'-11"	
8	H3405b	#9	34'-5"	
18	I1208b	#10	12'-8"	
38	I1405b	#10	14'-5"	
64	I1705b	#10	17'-5"	
23	I3411b	#10	34'-11"	

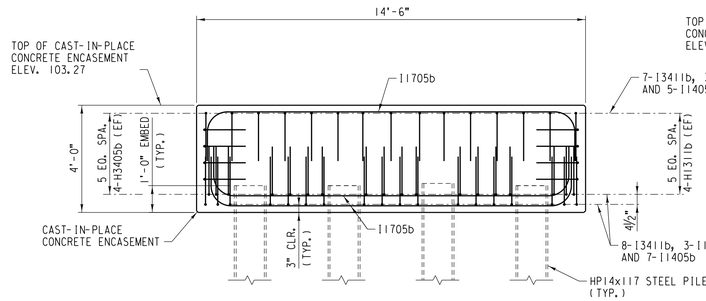
EST. WT. OF REINFORCING STEEL = 13,855 LB.

BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)

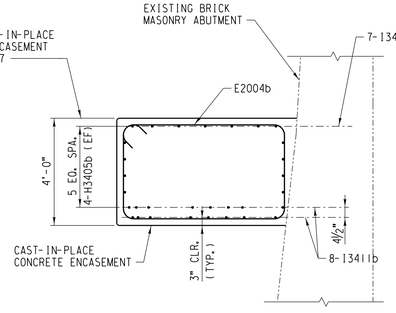




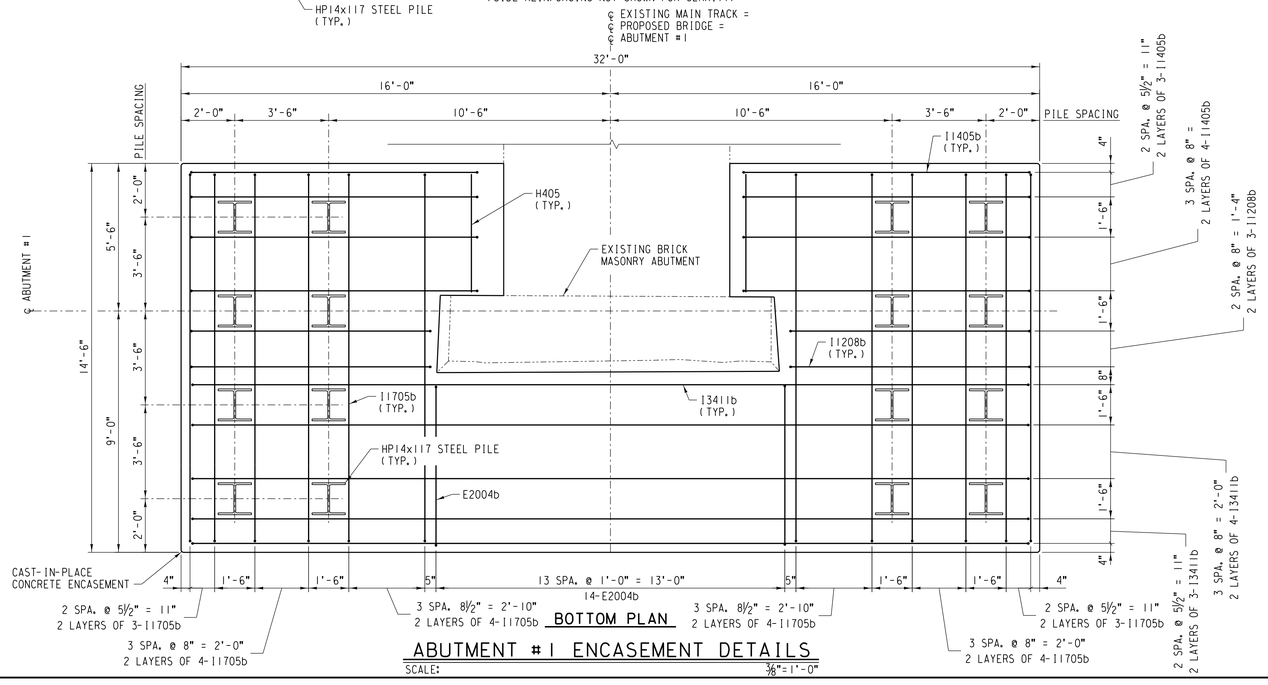
ELEVATION
(SIDE REINFORCING NOT SHOWN FOR CLARITY)



SECTION M 2121
SCALE: 3/8"=1'-0"



SECTION N 2121
SCALE: 3/8"=1'-0"



BOTTOM PLAN

ABUTMENT #1 ENCASEMENT DETAILS
SCALE: 3/8"=1'-0"

PROPOSED CONSTRUCTION SEQUENCE:

1. DRIVE PILE DURING WORK WINDOWS.
2. REMOVE LOOSE MATERIAL FROM EXISTING ABUTMENT SEAT BY BLAST CLEANING. ROUGHEN EXISTING CONCRETE TO MINIMUM ¼" AMPLITUDE.
3. INSTALL C204 DOWELS IN EXISTING CONCRETE ABUTMENT.
4. CONSTRUCT CAST-IN-PLACE CONCRETE ENCASEMENT.
5. TAKE TRACK OUT OF SERVICE (BY RAILROAD).
6. REMOVE EXISTING SUPERSTRUCTURE.
7. REMOVE EXISTING ABUTMENT TO LIMITS OF REMOVALS.
8. INSTALL PRECAST CONCRETE ABUTMENT CAP AND PRECAST CONCRETE ABUTMENT BACKWALL.

NOTES:

1. EXISTING APPROACH SLAB NOT SHOWN FOR CLARITY.
2. ADJUST REINFORCING AS REQUIRED TO CLEAR CAST HOLES.
3. SEE SHEET NO. S20 FOR CAST HOLE LOCATIONS.
4. SEE SHEET NO. S22 FOR EXISTING ABUTMENT REMOVAL DETAILS.
5. SEE SHEET NO. S20 FOR DOWELS TO EXISTING ABUTMENT. DOWELS NOT SHOWN FOR CLARITY.

Nathan P. Dickerson 4-20-23
REGISTERED PROFESSIONAL ENGINEER NATHAN P. DICKERSON No. C71974 Exp. 12/31/23 CIVIL STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

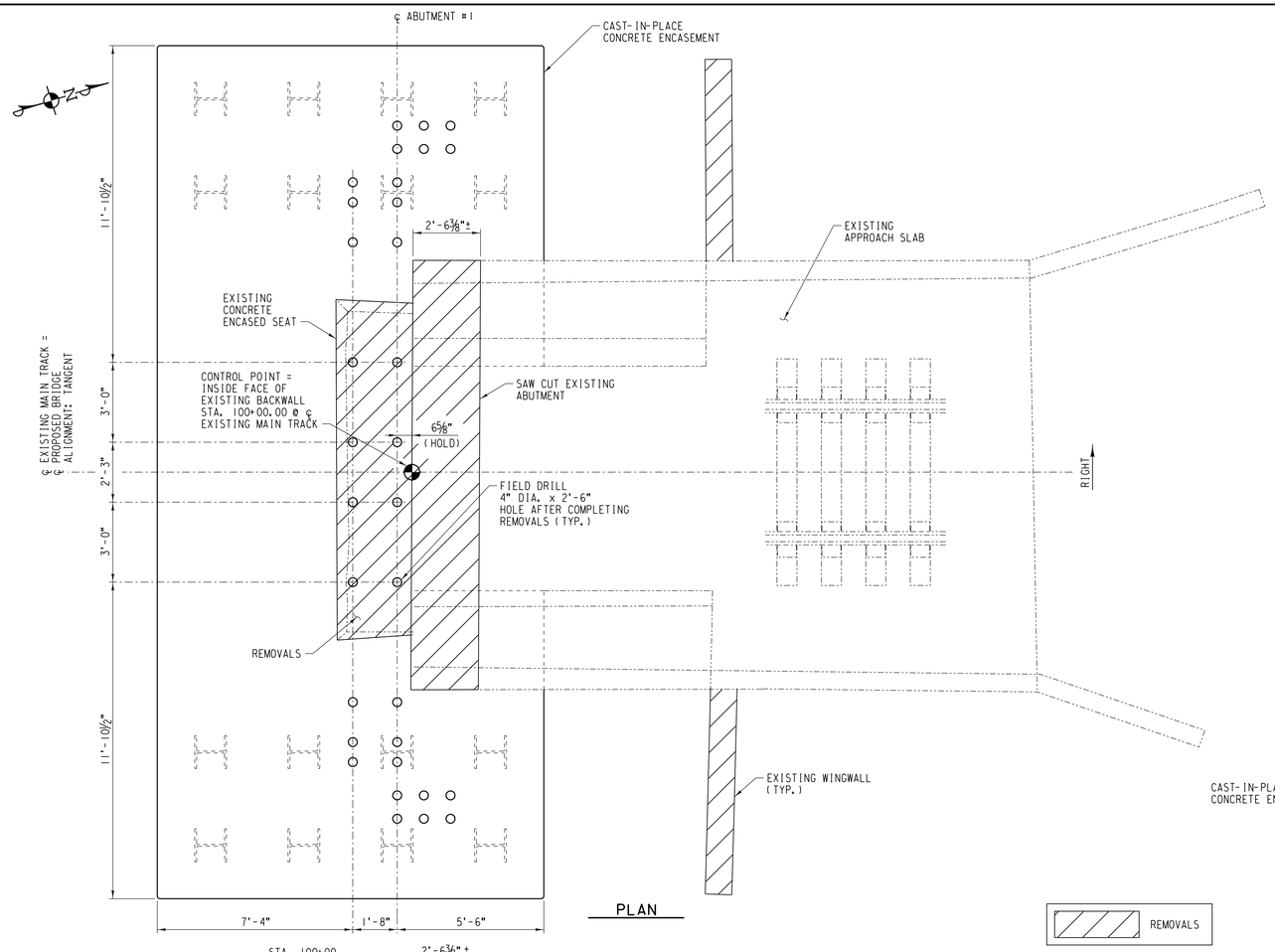
PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

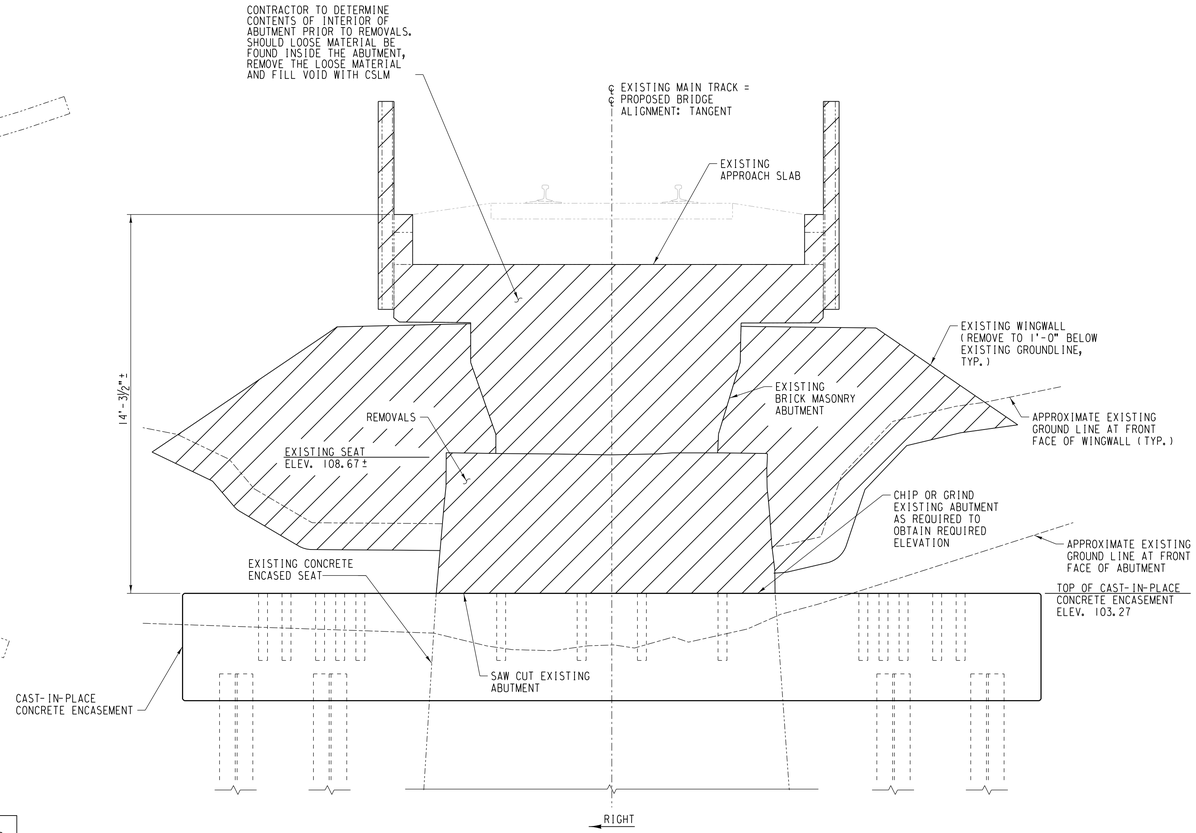
DSN/CHK BY: MJW/LAG	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/MJW	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: S21 of S37	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: ABUTMENT #1 DETAILS (SHEET 2 OF 3)

FILE NAME: pw://HDR.US.Nat1.ora1.01:41395/10253017/wrk30488_bca.dgn

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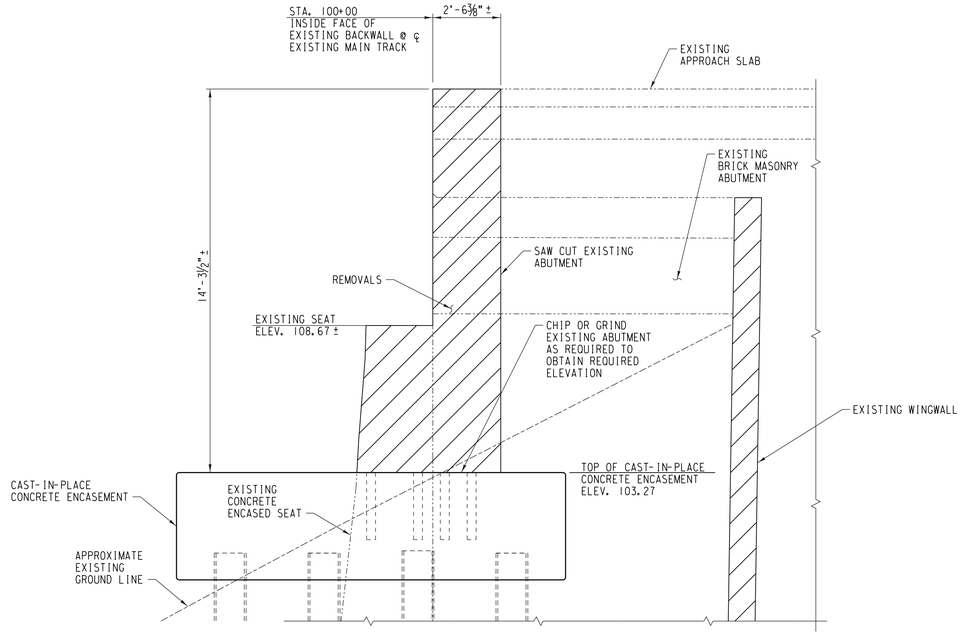


PLAN



SECTION

REMOVALS



ELEVATION

ABUTMENT #1 REMOVAL DETAILS

SCALE: ⅜"=1'-0"

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER — NATHAN P. DICKERSON — No. C71974 — Exp. 12/31/23 — CIVIL — STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL — STATUS — 04/20/2023 DATE

FDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

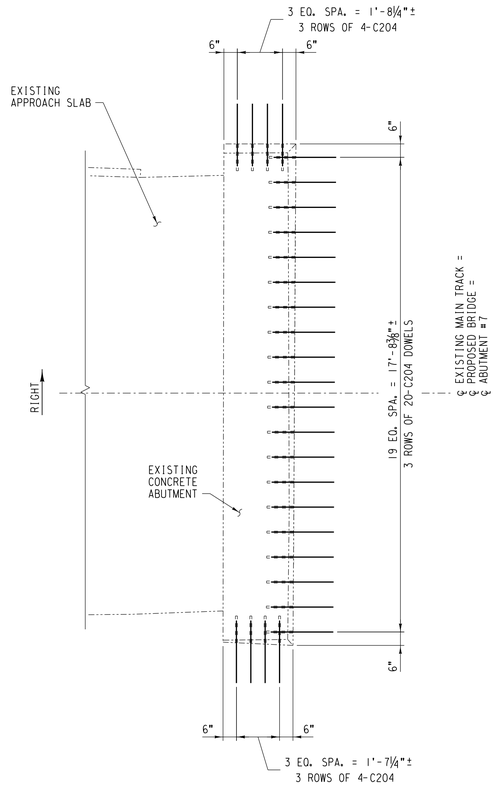
LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

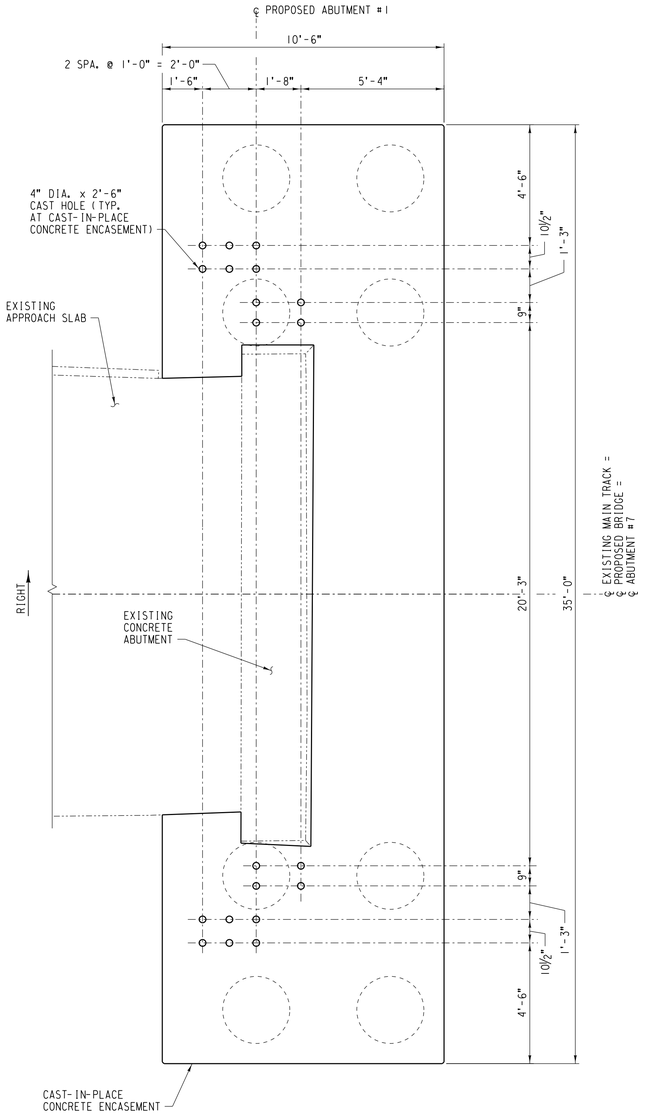
DSN/CHK BY: MJW/LAG	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/MJW	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: S22 of S37	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: ABUTMENT #1 DETAILS (SHEET 3 OF 3)

FILE NAME: pw://HDR.US.National.DI/41951/10053017/ent30488_bcca.dgn

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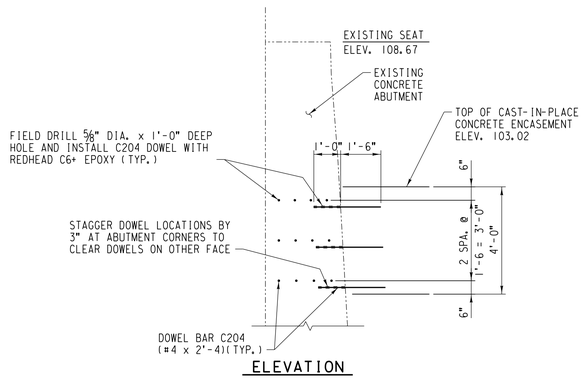


PLAN



ABUTMENT # 7 FRAMING PLAN

SCALE: ⅜"= 1'-0"



ELEVATION

ABUTMENT # 7 DOWEL LOCATION DETAIL

SCALE: ⅜"= 1'-0"

Nathan P Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

FDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S23 of S37

UNION PACIFIC RAILROAD

Office of Director Structures Design

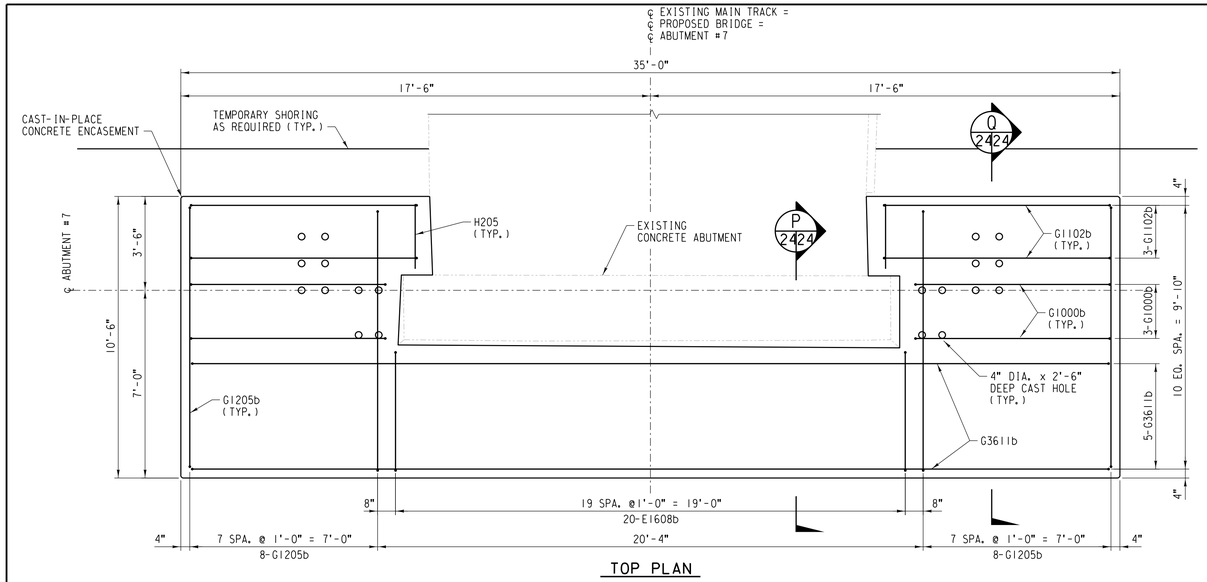
LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB

6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

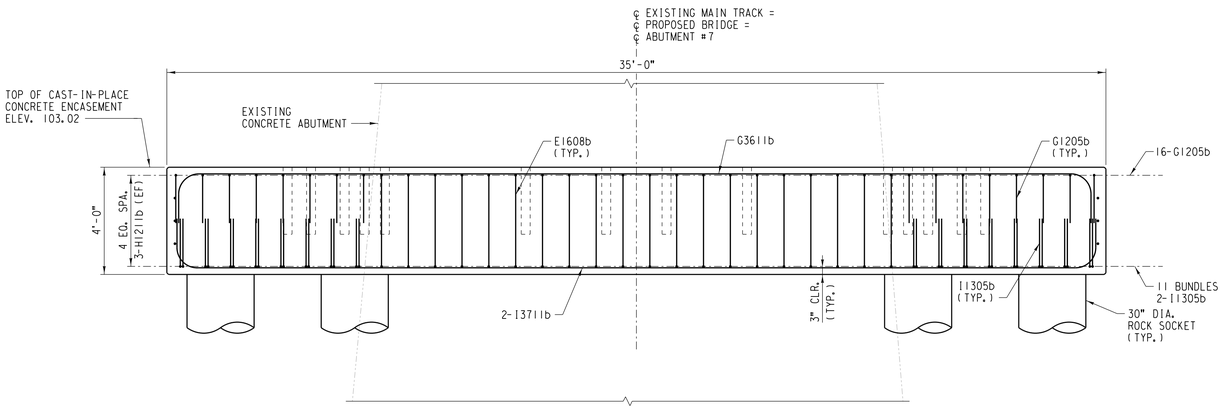
SHEET TITLE: ABUTMENT #7 DETAILS (SHEET 1 OF 3)

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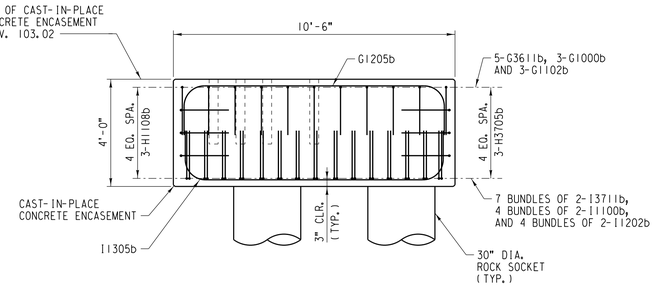


TOP PLAN



ELEVATION

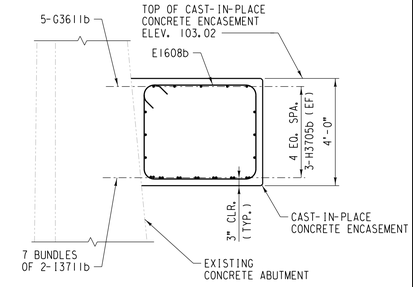
(SIDE REINFORCING AND ROCK SOCKET REINFORCING NOT SHOWN FOR CLARITY)



SECTION Q 2424

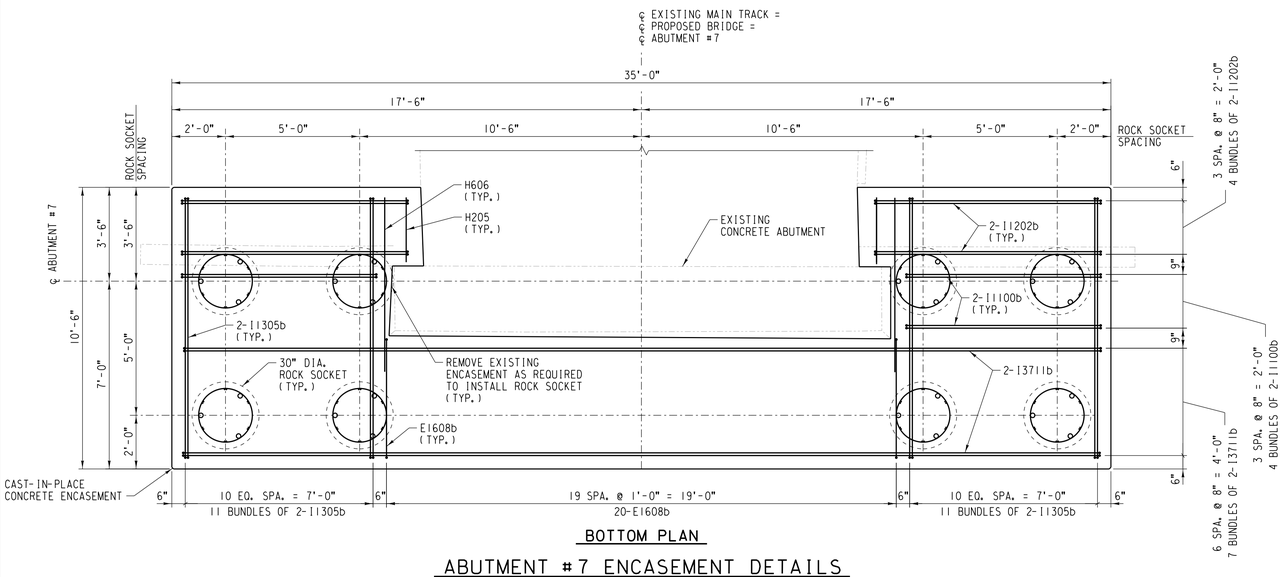
SCALE: 3/8"=1'-0"

(ROCK SOCKET REINFORCING NOT SHOWN FOR CLARITY)



SECTION P 2424

SCALE: 3/8"=1'-0"



BOTTOM PLAN

ABUTMENT #7 ENCASEMENT DETAILS

SCALE: 3/8"=1'-0"

MATERIAL SCHEDULE
(ABUTMENT #7)

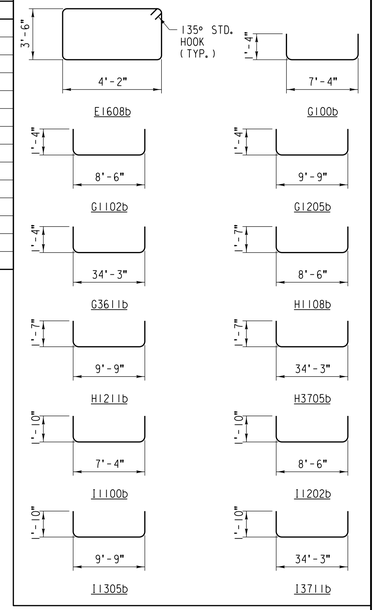
REQ'D	UNIT	DESCRIPTION
41	CU. YD.	5,000 PSI CONCRETE FOR ENCASEMENT (PER NOTES, SHEET NO. S5 AND DETAILS, THIS SHEET)
1	LOT	REINFORCING STEEL FOR ENCASEMENT (PER NOTES SHEET NO. S5 AND SCHEDULE, THIS SHEET)
84	EA.	DOWEL BAR C204 (#4 x 2'-4") ASTM A706, GR. 60
32	EA.	DOWEL BAR G503 (#8 x 5'-3") ASTM A706, GR. 60
32	EA.	DOWEL BAR H603 (#9 x 6'-3") ASTM A706, GR. 60

REINFORCING SCHEDULE
(ABUTMENT #7)

TOTAL	MARK	SIZE	LENGTH	SHAPE
20	E1608b	#6	16'-8"	O
6	G1000b	#8	10'-0"	
6	G1102b	#8	11'-2"	
16	G1205b	#8	12'-5"	
5	G3611b	#8	36'-11"	
4	H205	#9	2'-5"	—
2	H606	#9	6'-6"	—
6	H1108b	#9	11'-8"	
6	H1211b	#9	12'-11"	
6	H3705b	#9	37'-5"	
16	I1100b	#10	11'-0"	
16	I1202b	#10	12'-2"	
44	I1305b	#10	13'-5"	
14	I3711b	#10	37'-11"	

EST. WT. OF REINFORCING STEEL = 9,625 LB.

BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)



PROPOSED CONSTRUCTION SEQUENCE:

1. REMOVE EXISTING WINGWALLS TO 1'-0" BELOW GROUNDLINE. PROVIDE TEMPORARY SHORING AS REQUIRED.
2. LEVEL AREA TO BOTTOM OF ENCASEMENT WITH CONCRETE PRIOR TO ROCK SOCKET CONSTRUCTION.
3. CONSTRUCT ROCK SOCKETS IN WORK WINDOWS.
4. REMOVE LOOSE MATERIAL FROM EXISTING ABUTMENT SEAT BY BLAST CLEANING. ROUGHEN EXISTING CONCRETE TO MINIMUM ¼" AMPLITUDE.
5. INSTALL C204 DOWELS IN EXISTING CONCRETE ABUTMENT.
6. CONSTRUCT CAST-IN-PLACE CONCRETE ENCASEMENT.
7. TAKE TRACK OUT OF SERVICE (RAILROAD).
8. REMOVE EXISTING SUPERSTRUCTURE.
9. REMOVE EXISTING ABUTMENT TO LIMITS OF REMOVALS.
10. INSTALL PRECAST CONCRETE ABUTMENT CAP AND PRECAST CONCRETE ABUTMENT BACKWALL.

NOTES:

1. ADJUST REINFORCING AS REQUIRED TO CLEAR CAST HOLES.
2. SEE SHEET NO. S23 FOR CAST HOLE LOCATIONS.
3. SEE SHEET NO. S25 FOR EXISTING ABUTMENT REMOVAL DETAILS.
4. SEE SHEET NO. S23 FOR DOWELS TO EXISTING ABUTMENT. DOWELS NOT SHOWN FOR CLARITY.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL — STATUS — 04/20/2023 DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:

Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER — NATHAN P. DICKERSON — No. C71974 — Exp. 12/31/23 — CIVIL — STATE OF CALIFORNIA

UNION PACIFIC

DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S24 of S37

UNION PACIFIC RAILROAD

Office of Director Structures Design

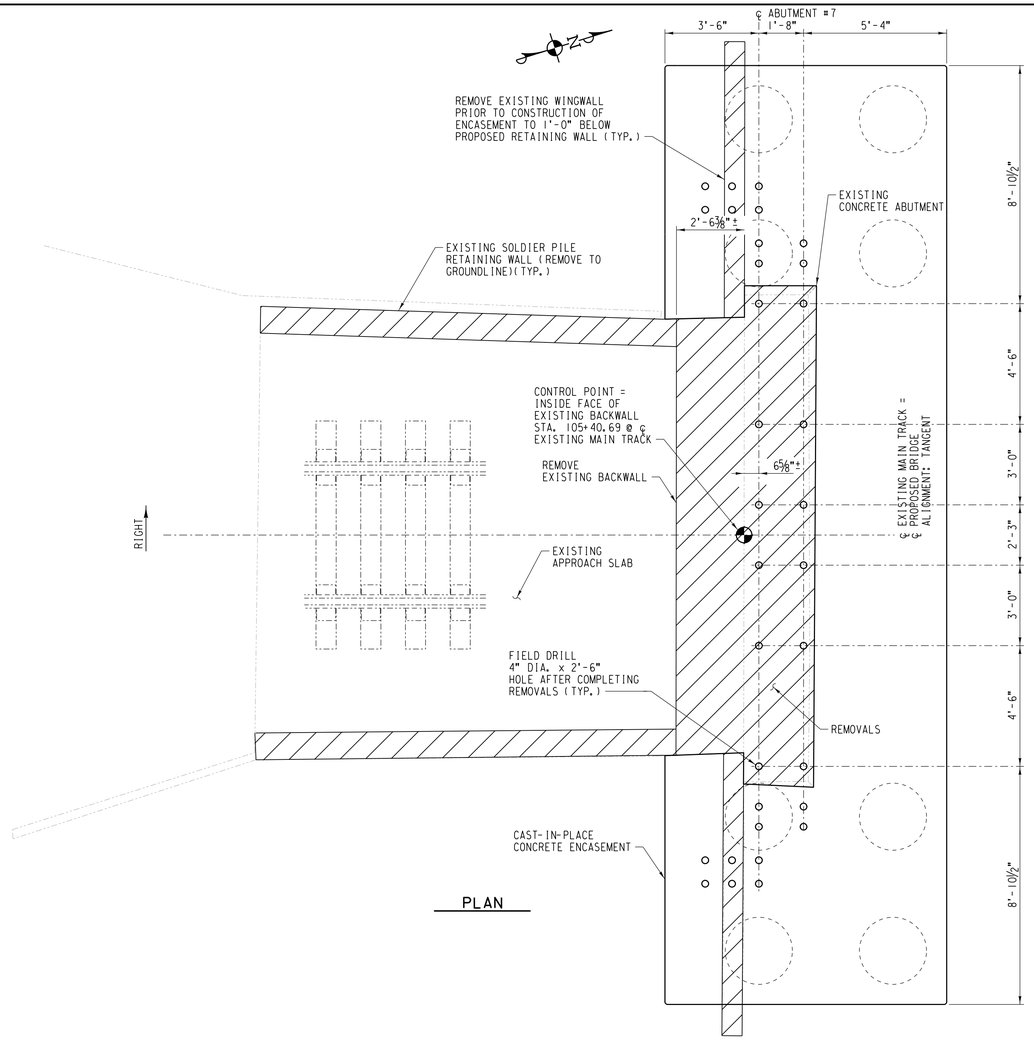
LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB

6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

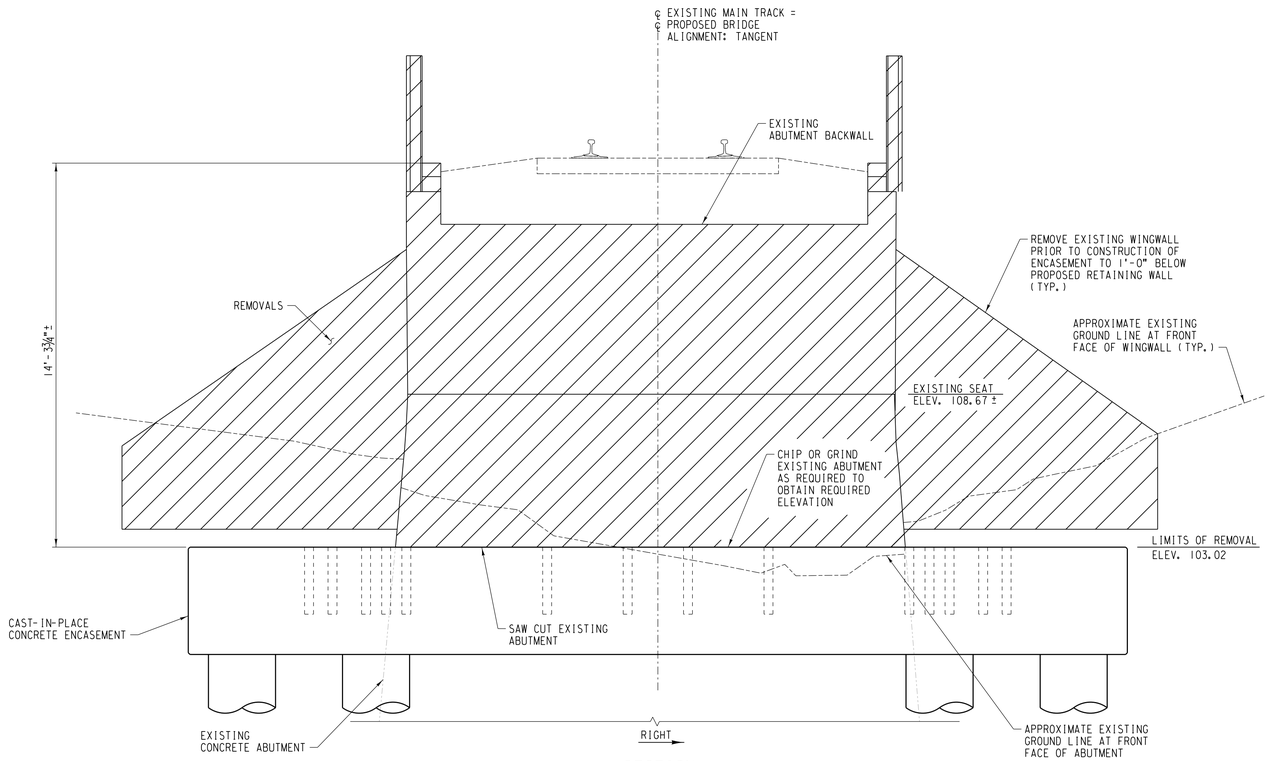
SHEET TITLE: ABUTMENT #7 DETAILS (SHEET 2 OF 3)

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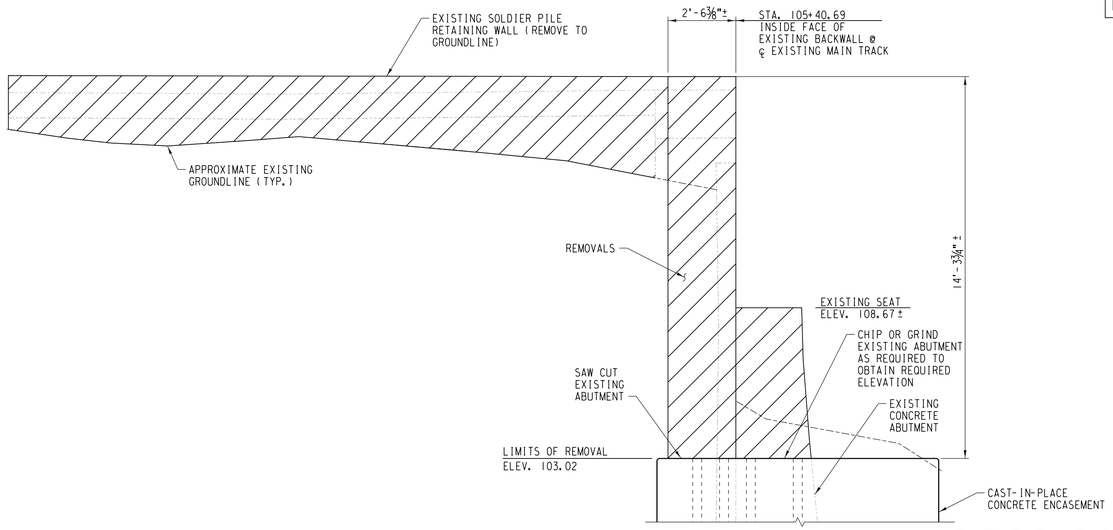


PLAN



SECTION

REMOVALS



ELEVATION

ABUTMENT # 7 REMOVAL DETAILS

SCALE: ⅜"=1'-0"

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL (STATUS) 04/20/2023 (DATE)

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER 04/20/2023 DATE

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER — NATHAN P. DICKERSON — No. C71974 — Exp. 12/31/23 — CIVIL — STATE OF CALIFORNIA

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S25 of S37

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB

6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: ABUTMENT #7 DETAILS (SHEET 3 OF 3)

FILE NAME: pw://HDR.US.hatcrail.01/41951/1265017/ark30488_bca.dgn

PLOTTED: 4/21/2023 3:32:18 PM

MATERIAL SCHEDULE
(PIER #2)

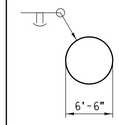
REQ'D	UNIT	DESCRIPTION
281	CU. YD.	5,000 PSI CONCRETE FOR FOOTING (PER NOTES, SHEET NO. S5 AND DETAILS, SHEET NOS. S27 AND S28)
1	LOT	REINFORCING STEEL FOR FOOTING (PER NOTES, SHEET NO. S5 AND SCHEDULE, SHEET NO. S27)
103	CU. YD.	5,000 PSI CONCRETE FOR COLUMNS (PER NOTES, SHEET NO. S5 AND DETAILS, THIS SHEET)
1	LOT	REINFORCING STEEL FOR COLUMNS (PER NOTES, SHEET NO. S5 AND SCHEDULE, THIS SHEET)
16	CU. YD.	5,000 PSI CONCRETE FOR APRON WALL (PER NOTES, SHEET NO. S5 AND DETAILS, SHEET NO. S28)
1	LOT	REINFORCING STEEL FOR APRON WALL (PER NOTES, SHEET NO. S5 AND SCHEDULE, SHEET NO. S28)
62	CU. YD.	5,000 PSI CONCRETE FOR PIER CAP (PER NOTES, SHEET NO. S5 AND DETAILS, SHEET NO. S33)
1	LOT	REINFORCING STEEL FOR PIER CAP (PER NOTES, SHEET NO. S5 AND SCHEDULE, SHEET NO. S33)

REINFORCING SCHEDULE
(PIER #2 COLUMNS)

TOTAL	PER COLUMN	MARK	SIZE	LENGTH	SHAPE
206	103	F2005b	#7	20'-5"	○
112	56	H5106	#9	51'-6"	—

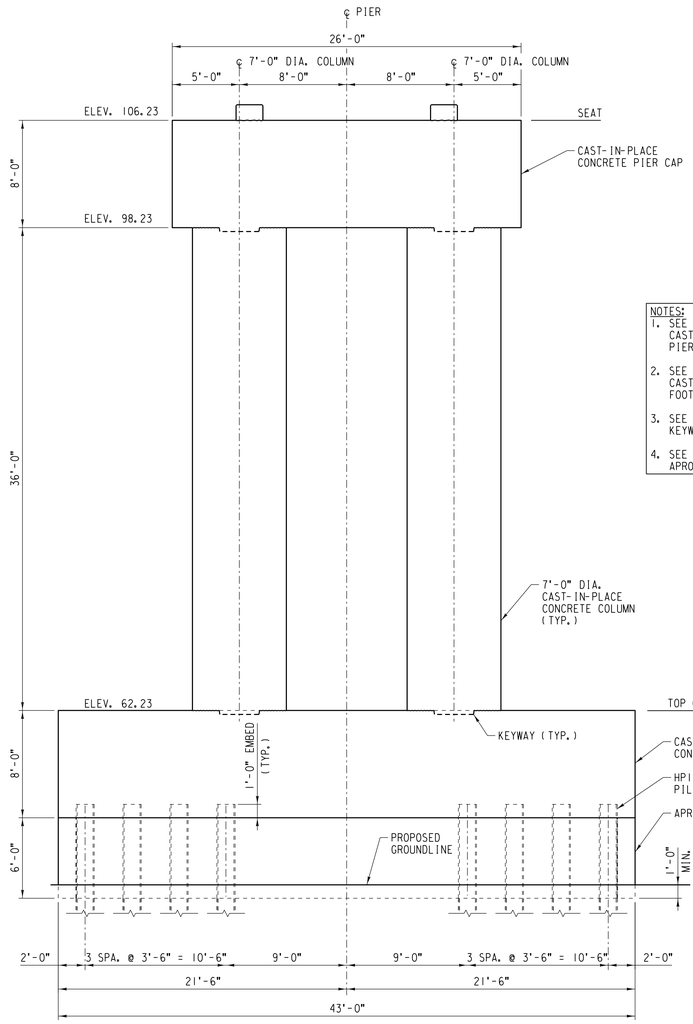
EST. WT. OF REINFORCING STEEL PER COLUMN= 14,105 LB.
TOTAL EST. WT. OF REINFORCING STEEL = 28,210 LB.

BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)



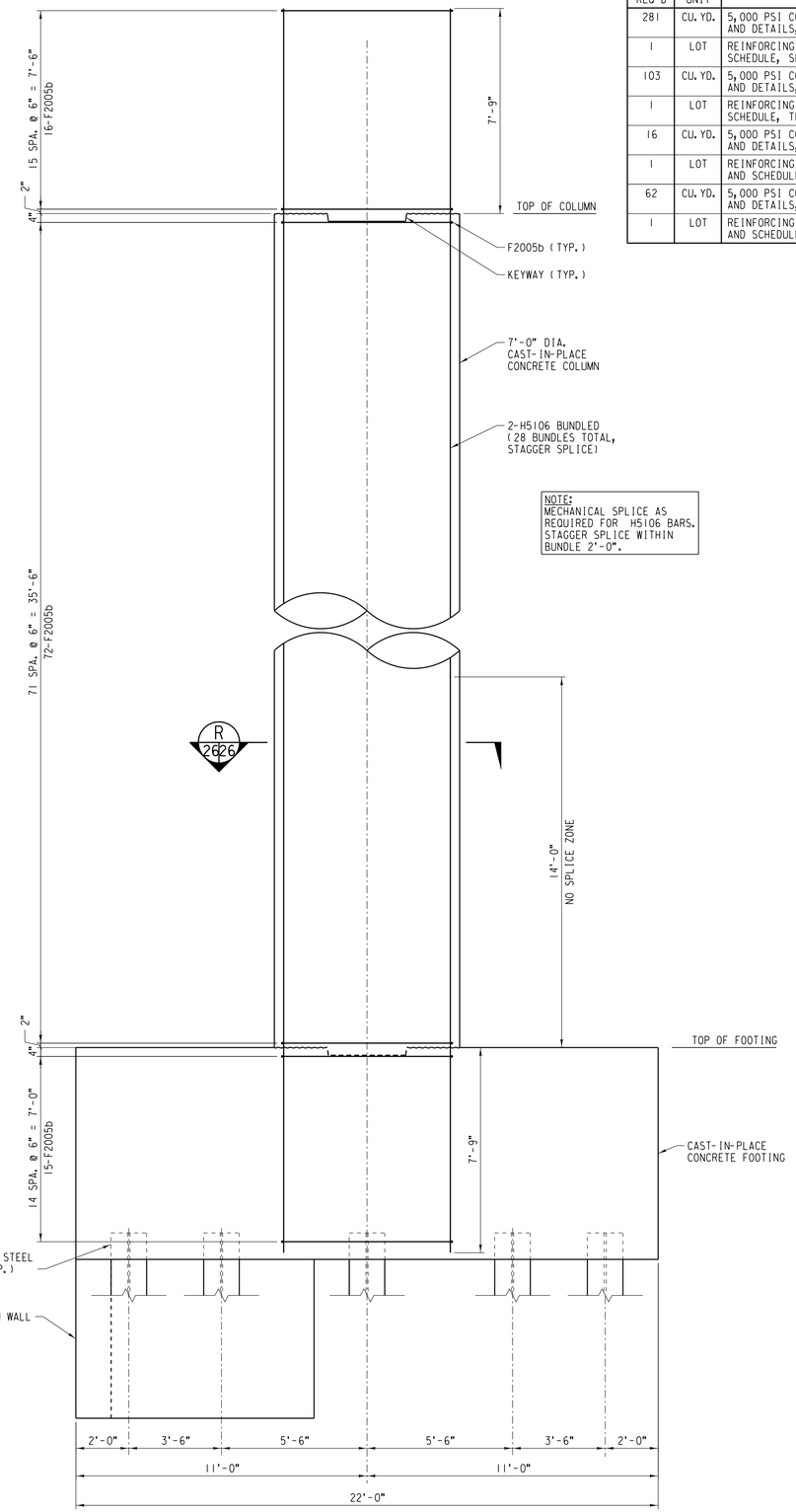
F2005b

NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.



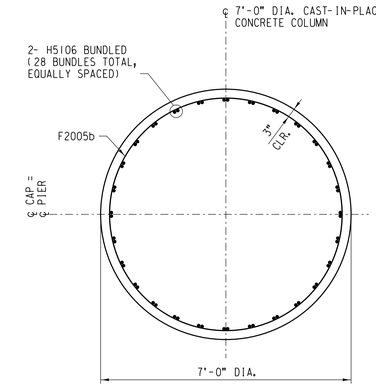
PIER #2 - FRAMING
SCALE: 3/16"=1'-0"

NOTES:
1. SEE SHEET NO. S33 FOR CAST-IN-PLACE CONCRETE PIER CAP DETAILS.
2. SEE SHEET NO. S27-S28 FOR CAST-IN-PLACE CONCRETE FOOTING DETAILS.
3. SEE SHEET NO. S27 FOR KEYWAY DETAIL.
4. SEE SHEET NO. S28 FOR APRON WALL DETAIL.



PIER #2 COLUMN DETAILS
SCALE: 3/16"=1'-0"

NOTE:
MECHANICAL SPLICE AS REQUIRED FOR H5106 BARS. STAGGER SPLICE WITHIN BUNDLE 2'-0".



SECTION R 2626
SCALE: 1/2"=1'-0"

NOTE:
ORIENT REBAR TO ACCOMODATE PIER CAP AND FOOTING REINFORCING.

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S26 of S37

UNION PACIFIC RAILROAD
Office of Director Structures Design

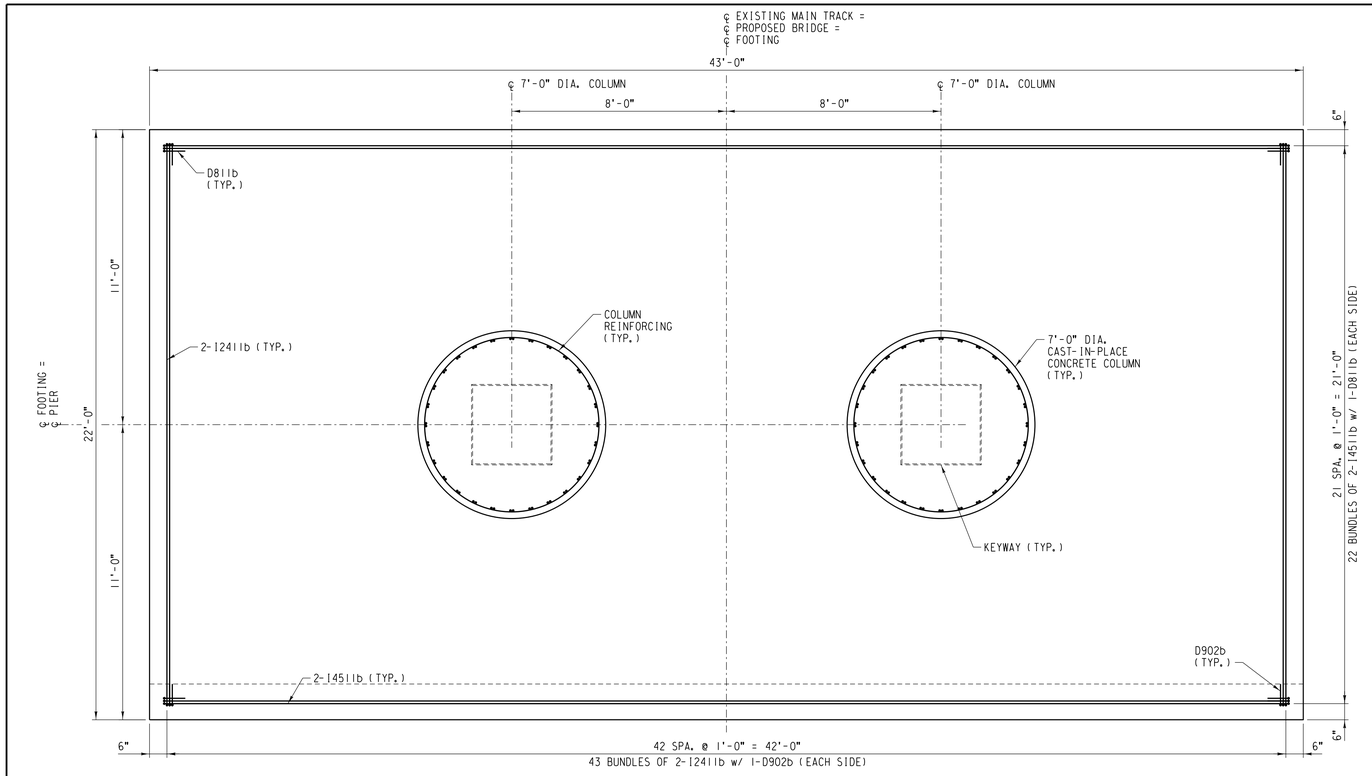
LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB

6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

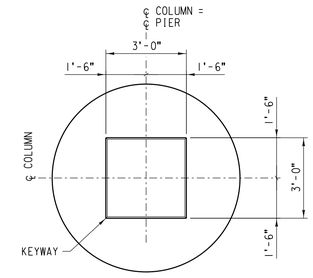
SHEET TITLE: CAST-IN-PLACE CONCRETE PIER #2 DETAILS (SHEET 1 OF 3)

FILE NAME: pw://HDR.US.Nat1.ora1.01/41395/1026301?/ws3d488.bca.dgn

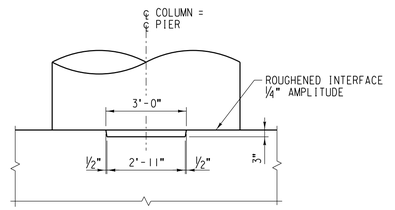
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TOP PLAN



PLAN



ELEVATION

KEYWAY DETAIL

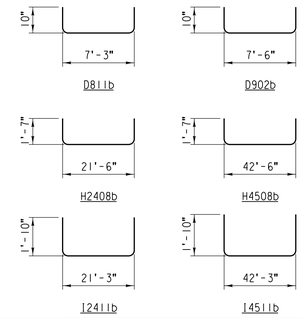
SCALE: ⅜"=1'-0"
(TYPICAL AT CONSTRUCTION JOINTS)

REINFORCING SCHEDULE
(PIER #2 FOOTING)

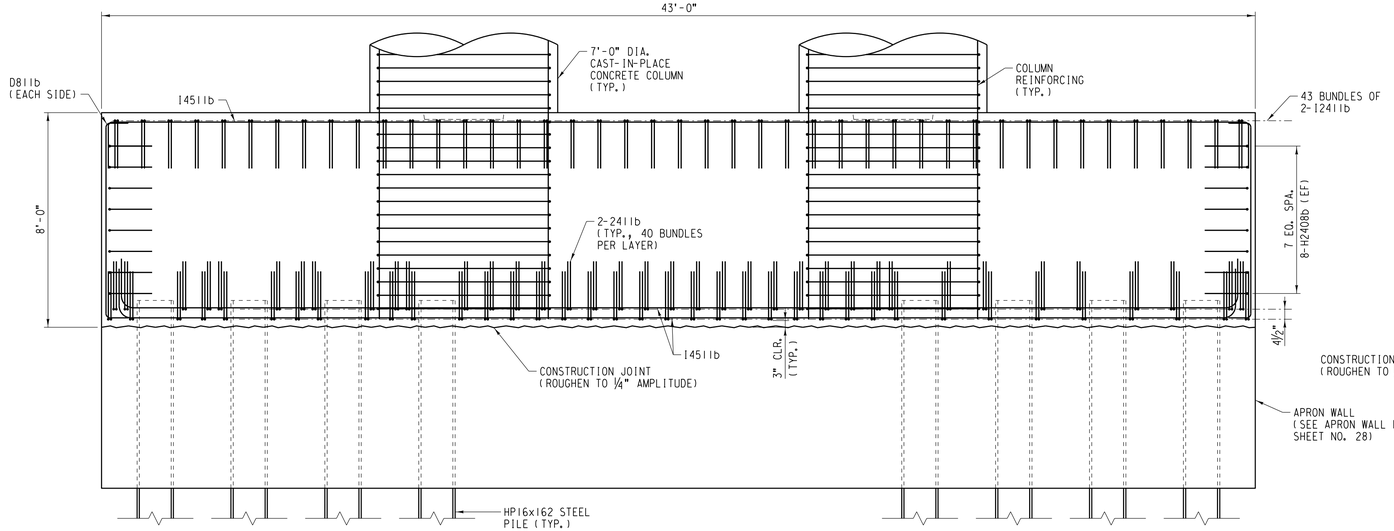
TOTAL	MARK	SIZE	LENGTH	SHAPE
44	D811b	#5	8'-11"	
86	D902b	#5	9'-2"	
16	H2408b	#9	24'-8"	
16	H4508b	#9	45'-8"	
246	1241lb	#10	24'-11"	
128	1451lb	#10	45'-11"	

EST. WT. OF REINFORCING STEEL = 56,725 LB.

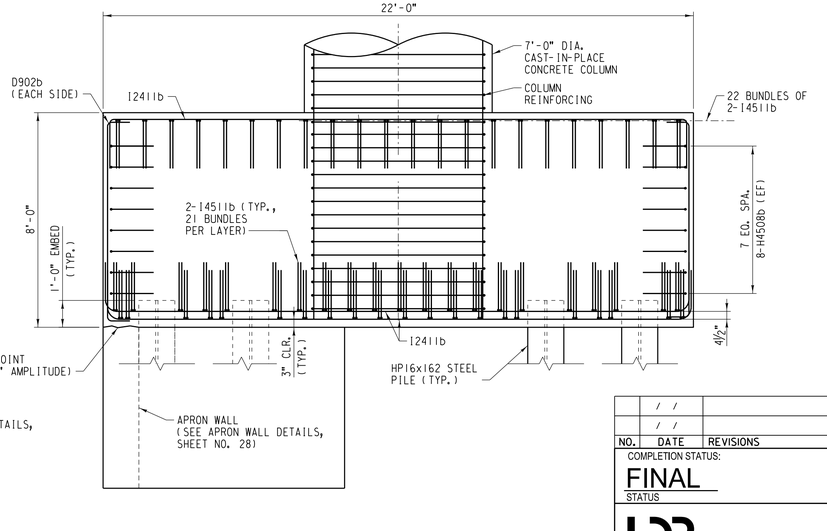
BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)



NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.



ELEVATION
(SIDE REINFORCING NOT SHOWN FOR CLARITY)



SIDE VIEW
(SIDE REINFORCING NOT SHOWN FOR CLARITY)

PIER #2 FOOTING DETAILS

SCALE: ⅜"=1'-0"

Nathan P. Dickerson 4-20-23
REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S27 of S37

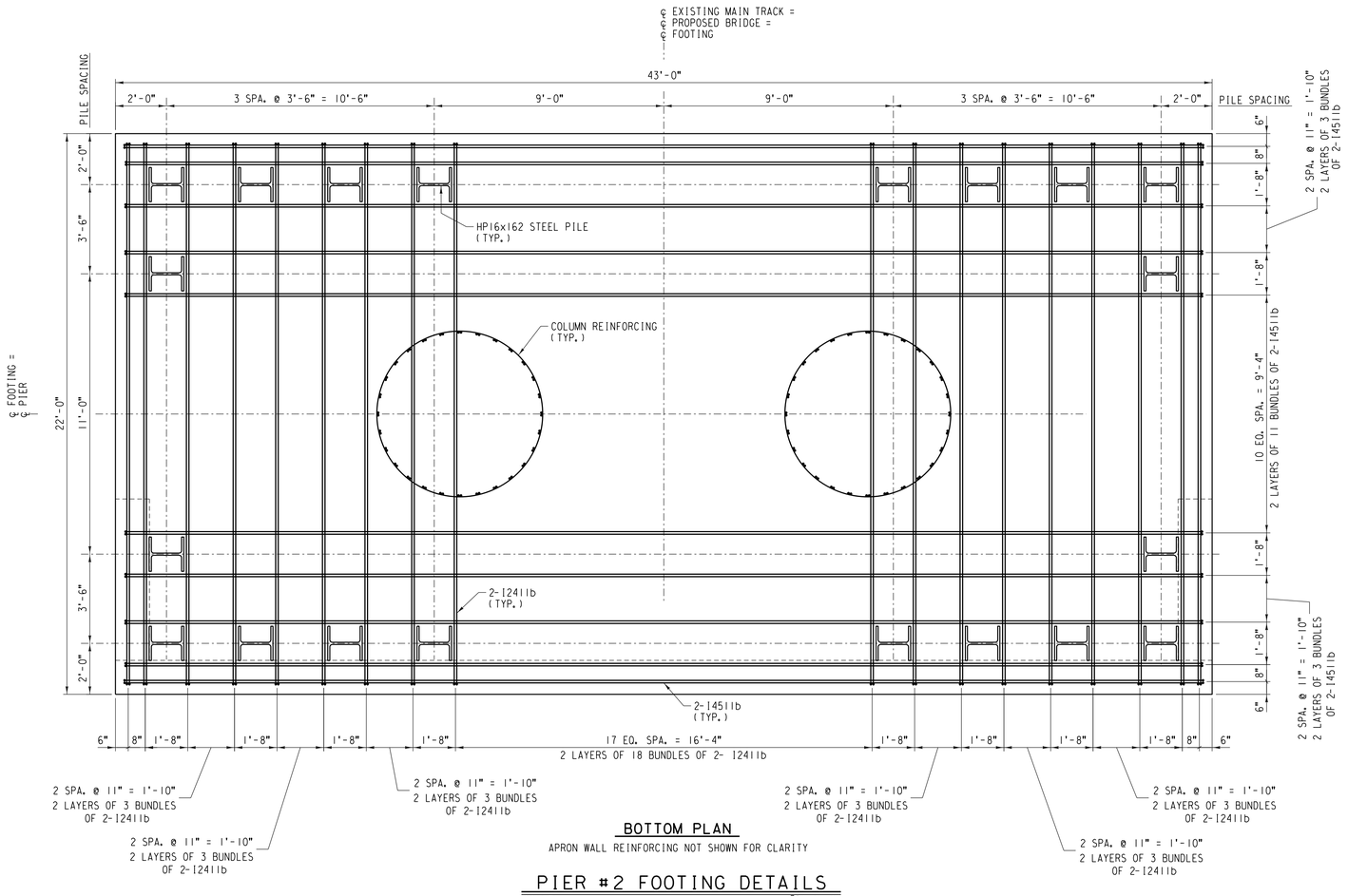
UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 304.88, SANTA BARBARA SUB
6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE:
CAST-IN-PLACE CONCRETE PIER #2 DETAILS (SHEET 2 OF 3)

FILE NAME: pw://HDR_US_National_01/41957/120630317/wrk30488_bcs.dgn

PLOTTED: 4/21/2023 3:32:20 PM

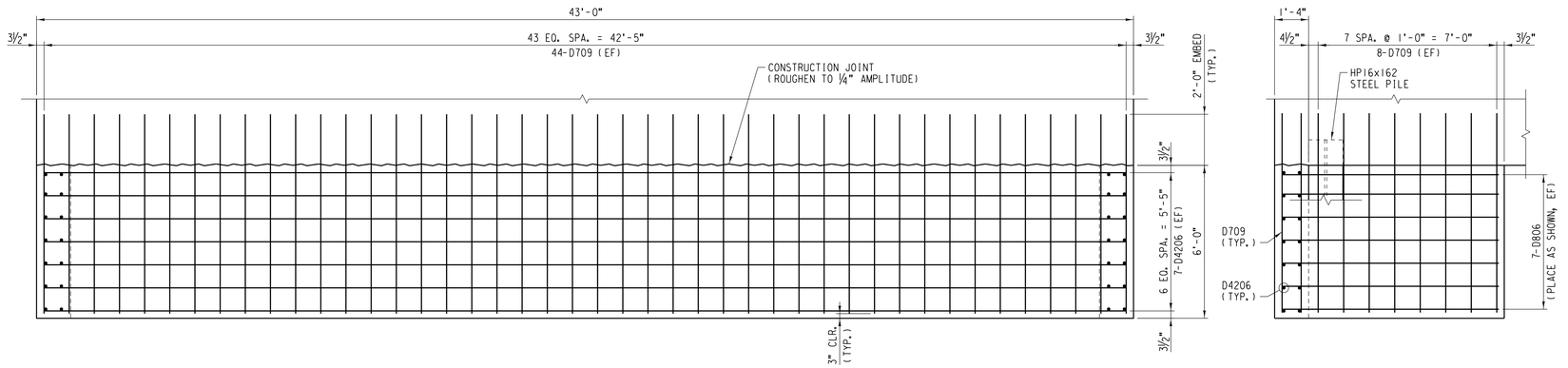


BOTTOM PLAN

APRON WALL REINFORCING NOT SHOWN FOR CLARITY

PIER #2 FOOTING DETAILS

SCALE: 3/8"=1'-0"



ELEVATION

END VIEW

REINFORCING SCHEDULE
(PIER #2 APRON WALL)

TOTAL	MARK	SIZE	LENGTH	SHAPE
120	D709	#5	7'-9"	——
28	D806	#5	8'-6"	——
14	D4206	#5	42'-6"	——

EST. WT. OF REINFORCING STEEL = 1,840 LB.

APRON WALL DETAILS

SCALE: 3/8"=1'-0"

PILE CAP REINFORCING NOT SHOWN FOR CLARITY

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

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Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

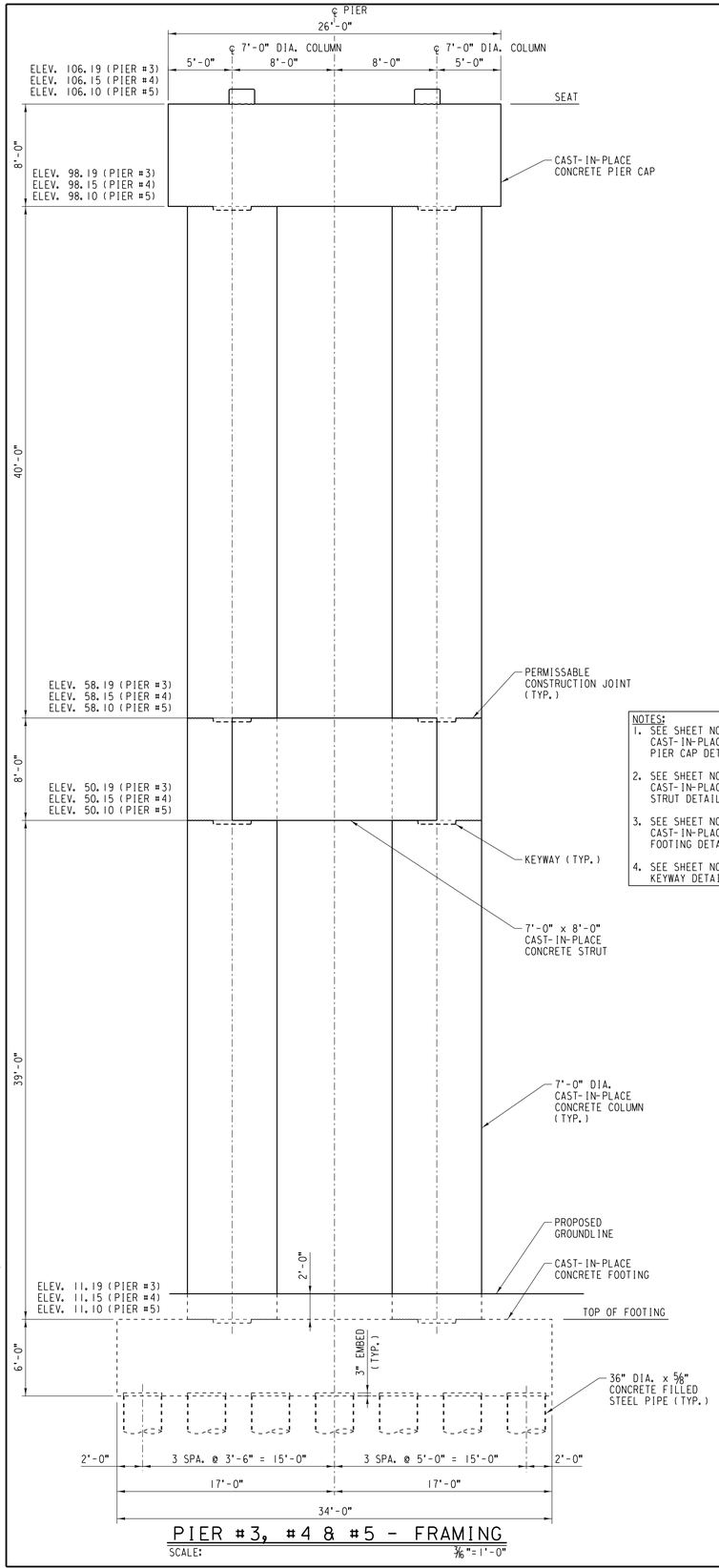
LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY: MJW/LAG	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/MJW	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: S28 of S37	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: CAST-IN-PLACE CONCRETE PIER #2 DETAILS (SHEET 3 OF 3)

FILE NAME: pw:\\HDR_US_National_01:41951105630317:ark30488_bcda.dgn

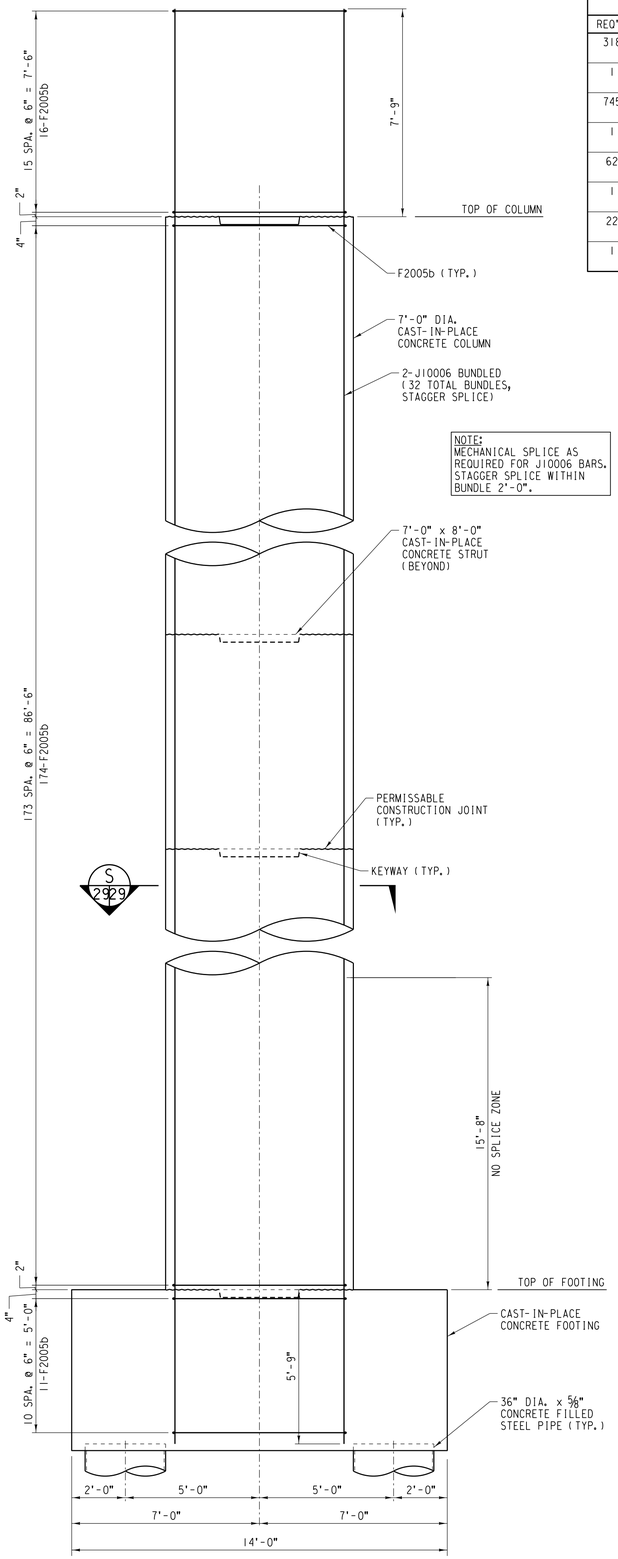
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PIER #3, #4 & #5 - FRAMING

SCALE: 3/16"=1'-0"

NOTES:
1. SEE SHEET NO. S33 FOR CAST-IN-PLACE CONCRETE PIER CAP DETAILS.
2. SEE SHEET NO. S34 FOR CAST-IN-PLACE CONCRETE STRUT DETAILS.
3. SEE SHEET NO. S30 FOR CAST-IN-PLACE CONCRETE FOOTING DETAILS.
4. SEE SHEET NO. S27 FOR KEYWAY DETAIL.



PIER #3, #4 & #5 COLUMN DETAILS

SCALE: 3/16"=1'-0"

MATERIAL SCHEDULE
(PIER #3, #4 AND #5)

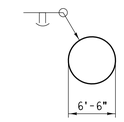
REQ'D	UNIT	DESCRIPTION
318	CU. YD.	5,000 PSI CONCRETE FOR FOOTING (PER NOTES, SHEET NO. S5 AND DETAILS, SHEET NO. S30)
1	LOT	REINFORCING STEEL FOR FOOTING (PER NOTES, SHEET NO. S5 AND SCHEDULE, SHEET NO. S30)
745	CU. YD.	5,000 PSI CONCRETE FOR COLUMNS (PER NOTES, SHEET NO. S5 AND DETAILS, THIS SHEET)
1	LOT	REINFORCING STEEL FOR COLUMNS (PER NOTES, SHEET NO. S5 AND SCHEDULE, THIS SHEET)
62	CU. YD.	5,000 PSI CONCRETE FOR PIER CAP (PER NOTES, SHEET NO. S5 AND DETAILS, SHEET NO. S33)
1	LOT	REINFORCING STEEL FOR PIER CAP (PER NOTES, SHEET NO. S5 AND SCHEDULE, SHEET NO. S33)
22	CU. YD.	5,000 PSI CONCRETE FOR STRUT (PER NOTES, SHEET NO. S5 AND DETAILS, SHEET NO. S34)
1	LOT	REINFORCING STEEL FOR STRUT (PER NOTES, SHEET NO. S5 AND SCHEDULE, SHEET NO. S34)

REINFORCING SCHEDULE
(PIER #3, #4 AND #5 COLUMNS)

TOTAL	PER PIER	PER CLOUMN	MARK	SIZE	LENGTH	SHAPE
1,206	402	201	F2005b	#7	20'-5"	○
384	128	64	J10006	#11	100'-6"	—

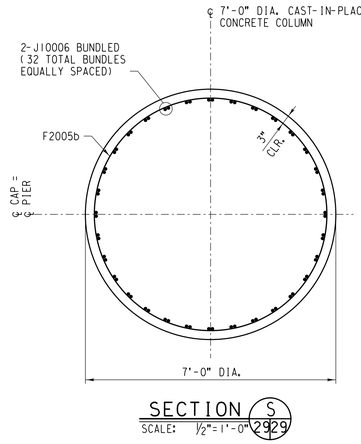
EST. WT. OF REINFORCING STEEL PER COLUMN = 42,565 LB.
EST. WT. OF REINFORCING STEEL PER PIER = 85,130 LB.
TOTAL EST. WT. OF REINFORCING STEEL = 255,390 LB.

BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)



F2005b

NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.



SECTION S 2929

SCALE: 1/2"=1'-0"

NOTE:
ORIENT REBAR TO ACCOMODATE PIER CAP AND FOOTING REINFORCING.

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL (STATUS) 04/20/2023 (DATE)

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P. Dickerson 04/20/2023
CONSULTANT ENGINEER DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

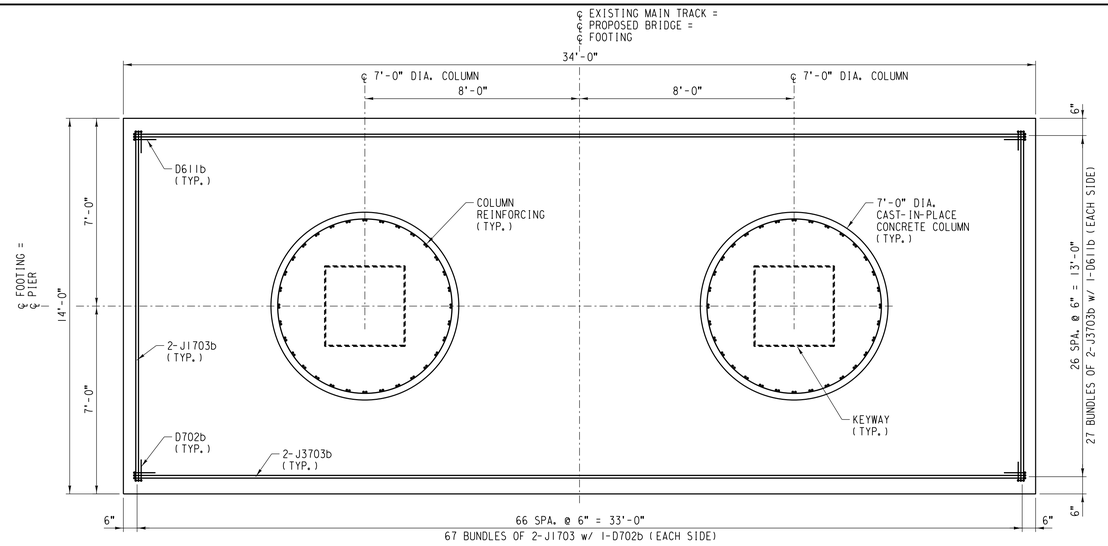
LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

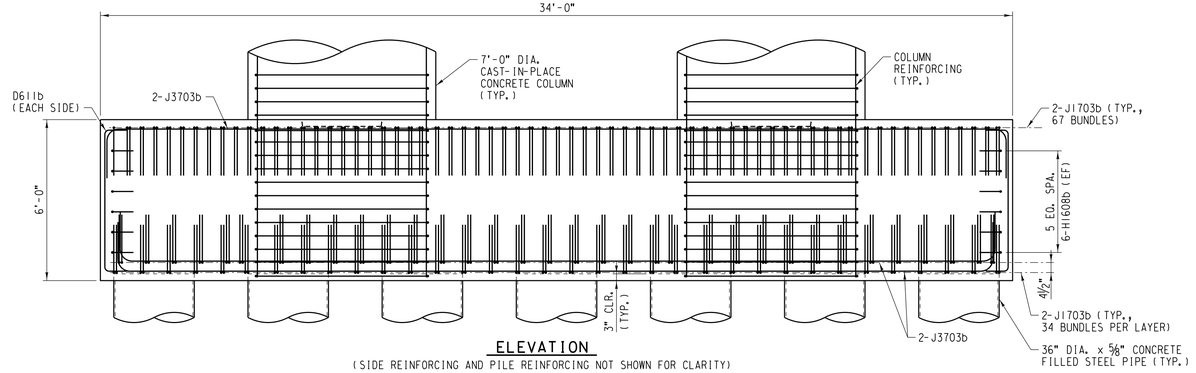
DSN/CHK BY: MJW/LAG	**UNION PACIFIC RAILROAD** Office of Director Structures Design
DRAWN/CHK BY: MAM/MJW	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
UPRR ENGINEER: ADS	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
SHT NO.: S29 of S37	SHEET TITLE: CAST-IN-PLACE CONCRETE PIER #3, #4, AND #5 DETAILS (SHEET 1 OF 2)

FILE NAME: pw://HDR_US_National.DO/41395/10263027/srk30488_bca.dgn

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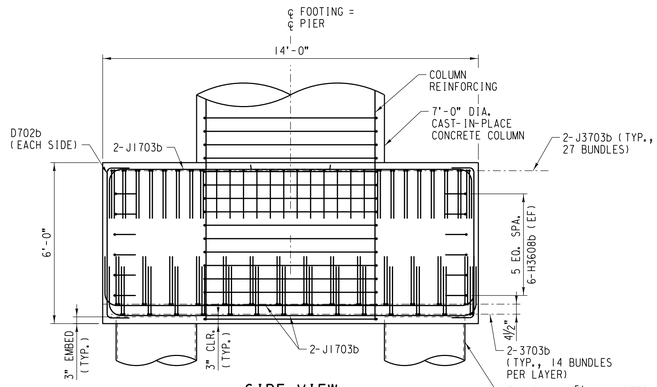


TOP PLAN



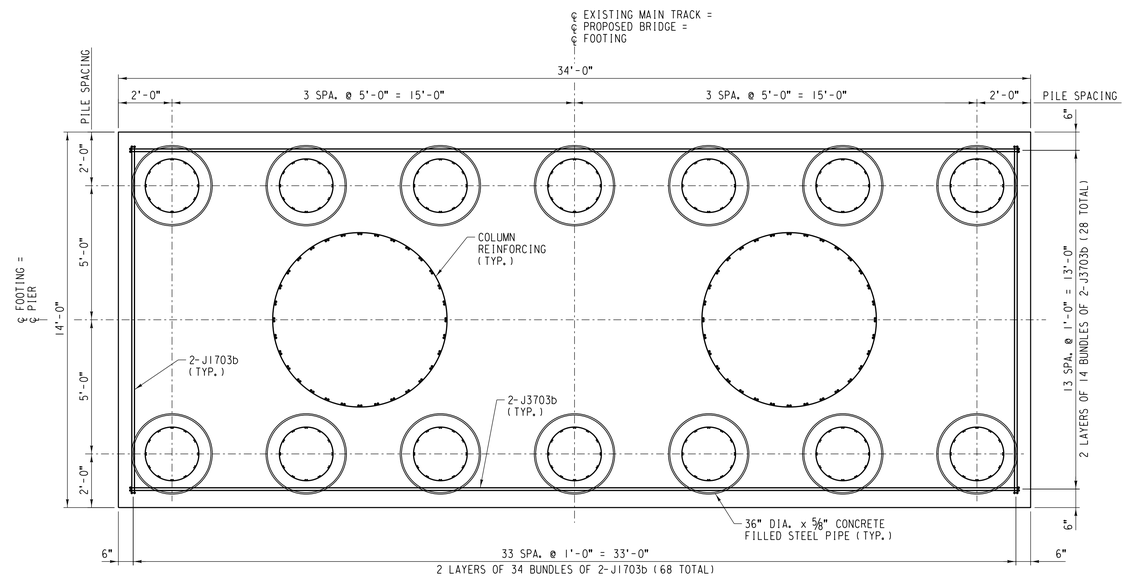
ELEVATION

(SIDE REINFORCING AND PILE REINFORCING NOT SHOWN FOR CLARITY)



SIDE VIEW

(SIDE REINFORCING AND PILE REINFORCING NOT SHOWN FOR CLARITY)



BOTTOM PLAN

REINFORCING SCHEDULE

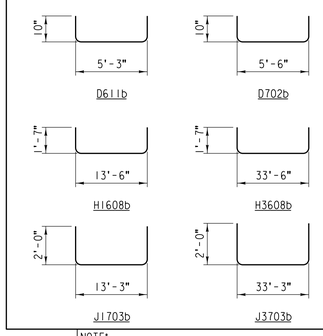
(PIER #3, #4 AND #5 FOOTING)

TOTAL	PER FOOTING	MARK	SIZE	LENGTH	SHAPE
162	54	D611b	#5	6'-11"	
402	134	D702b	#5	7'-2"	
36	12	H1608b	#9	16'-8"	
36	12	H3608b	#9	36'-8"	
810	270	J1703b	#11	17'-3"	
330	110	J3703b	#11	37'-3"	

EST. WT. OF REINFORCING STEEL PER FOOTING = 50,085 LB.
TOTAL EST. WT. OF REINFORCING STEEL = 150,250LB.

BENDING DIAGRAM

(DIMENSIONS ARE OUT TO OUT)



NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.

NOTE:
FOR KEYWAY DETAIL, SEE SHEET NO. S27.

PIER #3, #4 AND #5 FOOTING DETAILS

SCALE: 1/8"=1'-0"

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

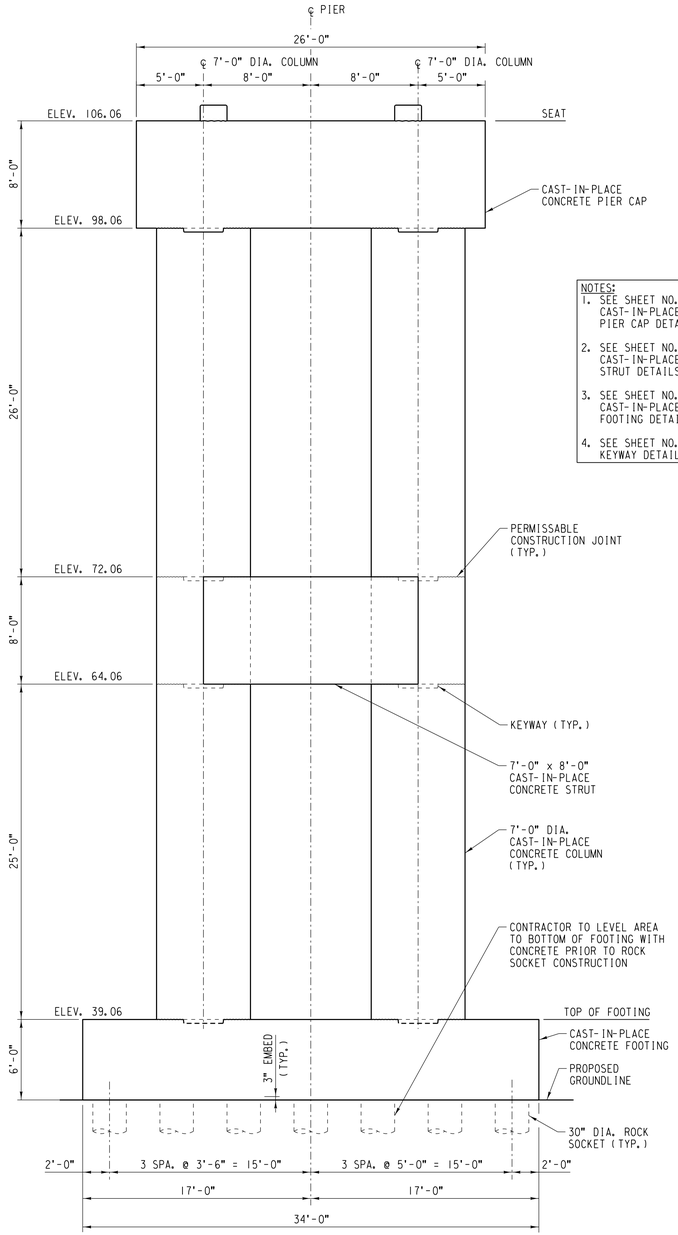
LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY: MJW/LAG	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/MJW	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: S30 of S37	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: CAST-IN-PLACE CONCRETE PIER #3, #4, AND #5 DETAILS (SHEET 2 OF 2)

FILE NAME: pw://HDR.US.Net:orol.01/41951/D2630317/ex63488_bca.dgn

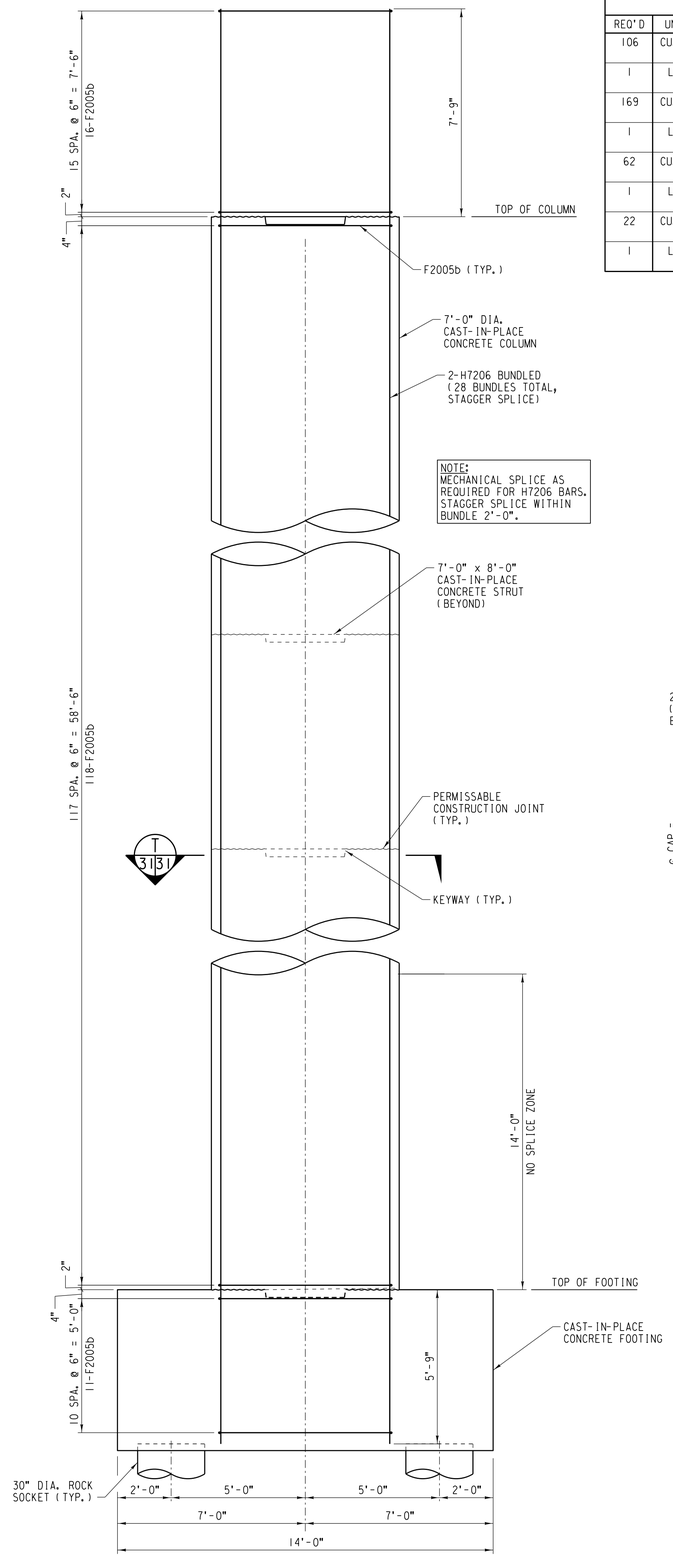
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PIER #6 - FRAMING

SCALE: 3/16"=1'-0"

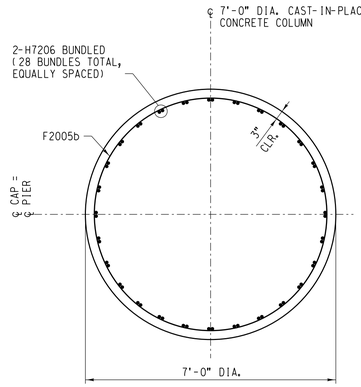
NOTES:
1. SEE SHEET NO. S33 FOR CAST-IN-PLACE CONCRETE PIER CAP DETAILS.
2. SEE SHEET NO. S34 FOR CAST-IN-PLACE CONCRETE STRUT DETAILS.
3. SEE SHEET NO. S32 FOR CAST-IN-PLACE CONCRETE FOOTING DETAILS.
4. SEE SHEET NO. S27 FOR KEYWAY DETAIL.



PIER #6 COLUMN DETAILS

SCALE: 3/16"=1'-0"

NOTE:
MECHANICAL SPLICE AS REQUIRED FOR H7206 BARS. STAGGER SPLICE WITHIN BUNDLE 2'-0".



SECTION T 3|31

SCALE: 1/2"=1'-0"

NOTE:
ORIENT REBAR TO ACCOMODATE PIER CAP AND FOOTING REINFORCING.

MATERIAL SCHEDULE
(PIER #6)

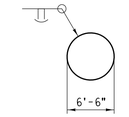
REQ'D	UNIT	DESCRIPTION
106	CU. YD.	5,000 PSI CONCRETE FOR FOOTING (PER NOTES, SHEET NO. S5 AND DETAILS, SHEET NO. S32)
1	LOT	REINFORCING STEEL FOR FOOTING (PER NOTES, SHEET NO. S5 AND SCHEDULE, SHEET NO. S32)
169	CU. YD.	5,000 PSI CONCRETE FOR COLUMNS (PER NOTES, SHEET NO. S5 AND DETAILS, THIS SHEET)
1	LOT	REINFORCING STEEL FOR COLUMNS (PER NOTES, SHEET NO. S5 AND SCHEDULE, THIS SHEET)
62	CU. YD.	5,000 PSI CONCRETE FOR PIER CAP (PER NOTES, SHEET NO. S5 AND DETAILS, SHEET NO. S33)
1	LOT	REINFORCING STEEL FOR PIER CAP (PER NOTES, SHEET NO. S5 AND SCHEDULE, SHEET NO. S33)
22	CU. YD.	5,000 PSI CONCRETE FOR STRUT (PER NOTES, SHEET NO. S5 AND DETAILS, SHEET NO. S34)
1	LOT	REINFORCING STEEL FOR STRUT (PER NOTES, SHEET NO. S5 AND SCHEDULE, SHEET NO. S34)

REINFORCING SCHEDULE
(PIER #6 COLUMNS)

TOTAL	PER COLUMN	MARK	SIZE	LENGTH	SHAPE
290	145	F2005b	#7	20'-5"	○
112	56	H7206	#9	72'-6"	—

EST. WT. OF REINFORCING STEEL PER COLUMN= 19,860 LB.
TOTAL EST. WT. OF REINFORCING STEEL = 39,720 LB.

BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)



F2005b

NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S31 of S37

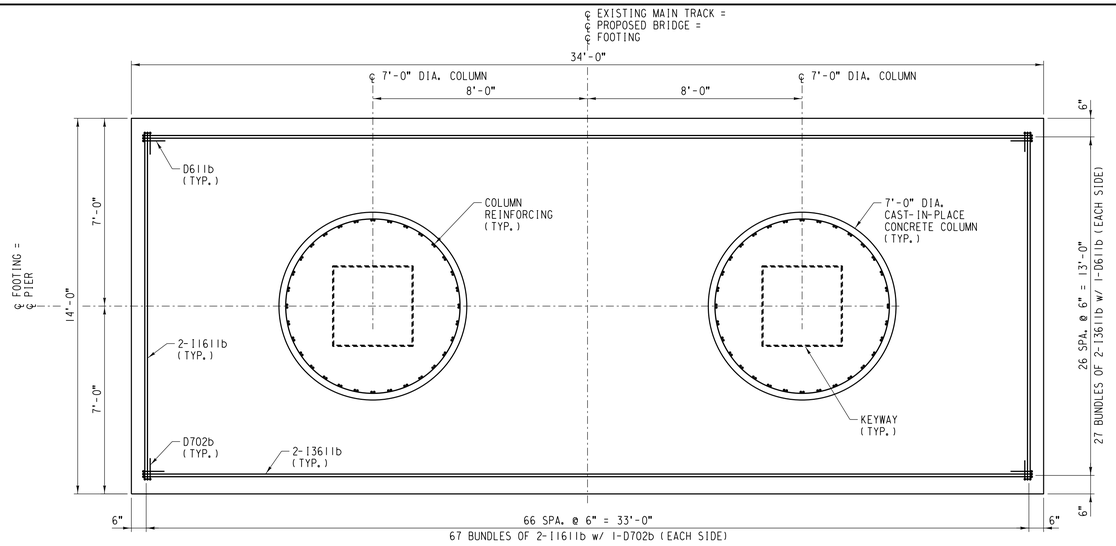
UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

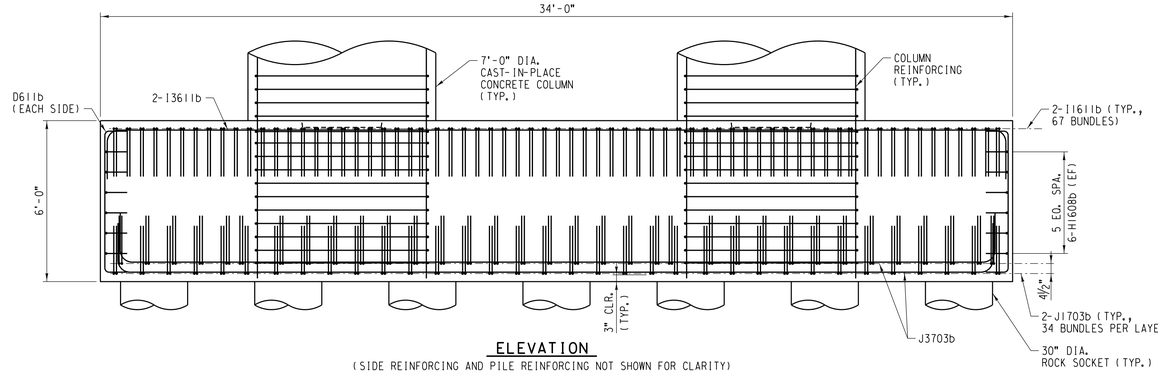
SHEET TITLE: CAST-IN-PLACE CONCRETE PIER #6 DETAILS (SHEET 1 OF 2)

FILE NAME: pw://HDR_US_National_OU/41395/10063017/ark30488_bca.dgn

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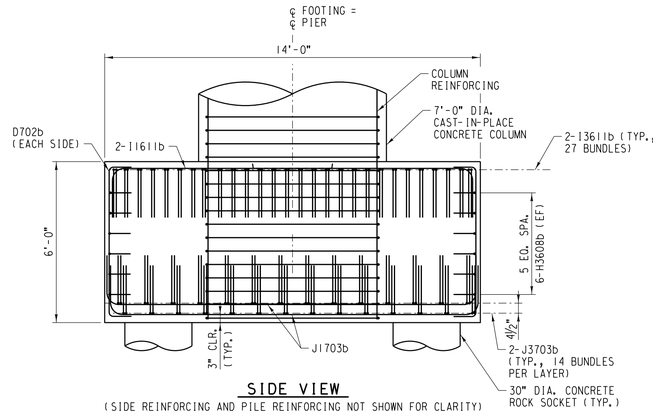


TOP PLAN



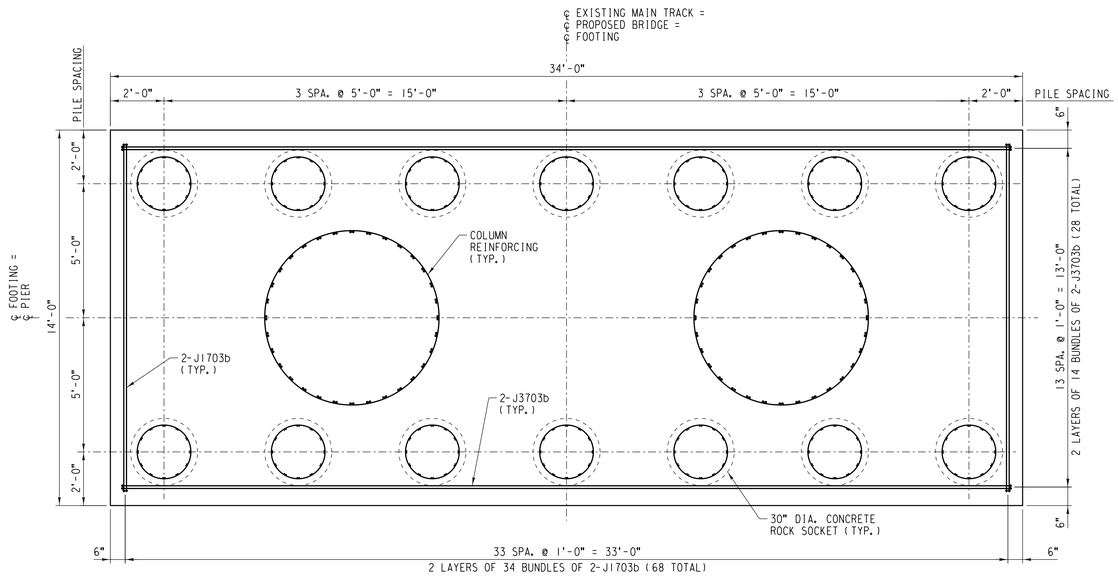
ELEVATION

(SIDE REINFORCING AND PILE REINFORCING NOT SHOWN FOR CLARITY)



SIDE VIEW

(SIDE REINFORCING AND PILE REINFORCING NOT SHOWN FOR CLARITY)



BOTTOM PLAN

(SIDE REINFORCING NOT SHOWN FOR CLARITY)

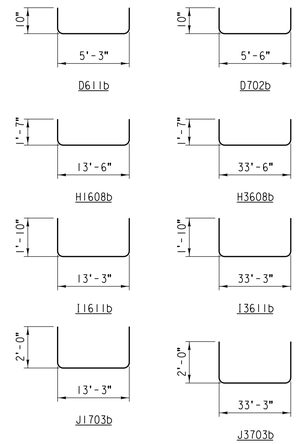
NOTE:
FOR KEYWAY DETIL,
SEE SHEET NO. S27.

REINFORCING SCHEDULE
(PIER #6 FOOTING)

TOTAL	MARK	SIZE	LENGTH	SHAPE
54	D611b	#5	6'-11"	
134	D702b	#5	7'-2"	
12	H1608b	#9	16'-8"	
12	H3608b	#9	36'-8"	
134	I1611b	#10	16'-11"	
54	I3611b	#10	36'-11"	
136	J1703b	#11	17'-3"	
56	J3703b	#11	37'-3"	

EST. WT. OF REINFORCING STEEL = 45,650 LB.

BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)



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PIER #6 FOOTING DETAILS

SCALE: 3/8"=1'-0"

Nath P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
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Nath P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

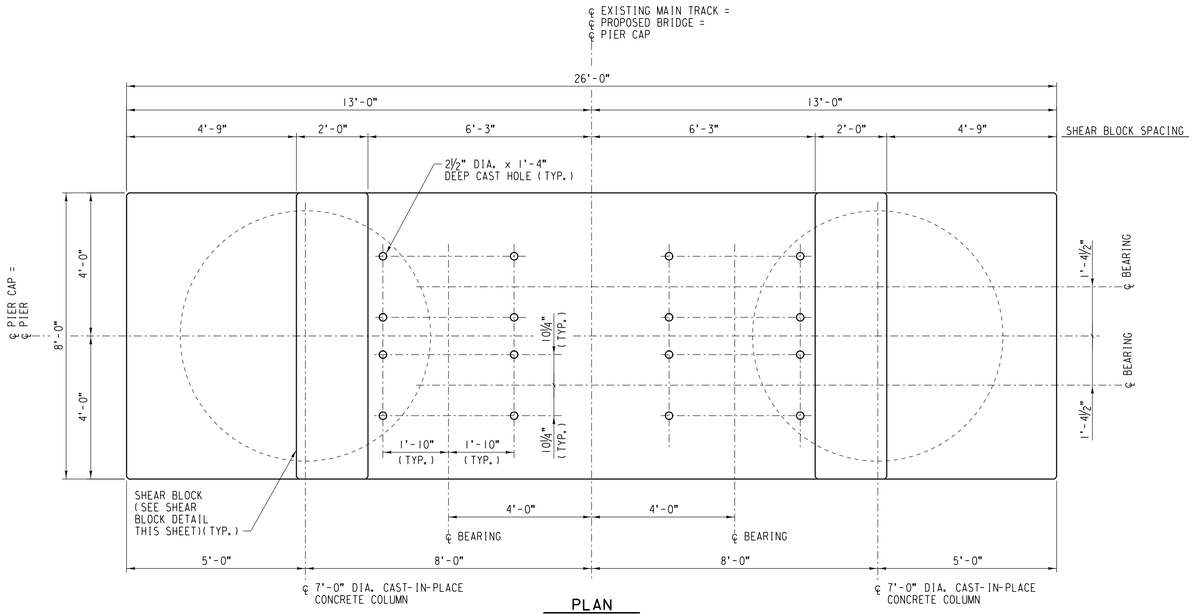
PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

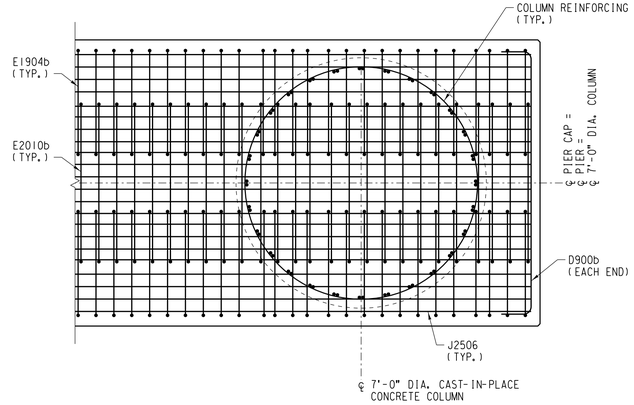
DSN/CHK BY: MJW/LAG	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/MJW	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: S32 of S37	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: CAST-IN-PLACE CONCRETE PIER #6 DETAILS (SHEET 2 OF 2)

FILE NAME: pw://HDR_US_National_01/41957/105503017/wrk30488_bcs.dgn

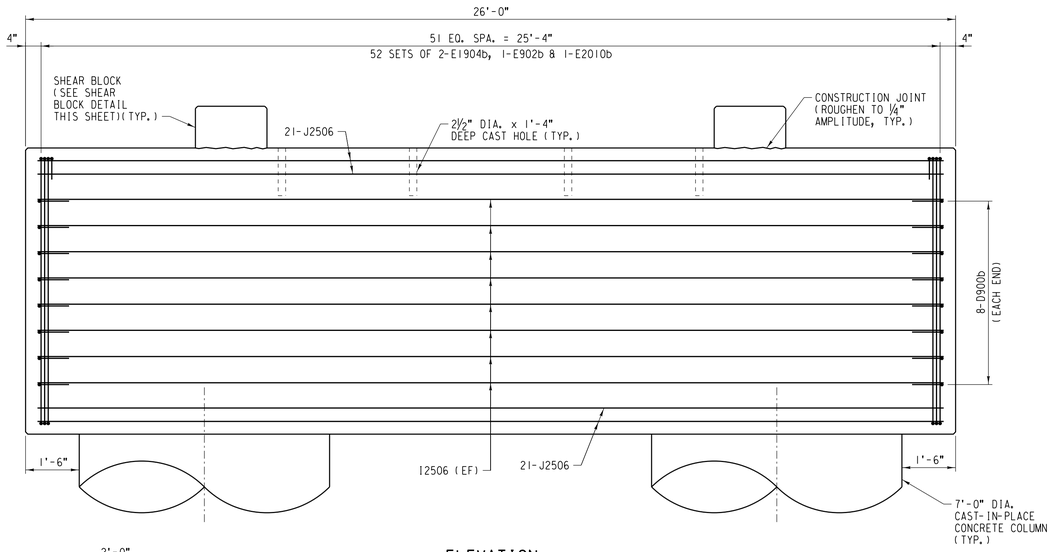
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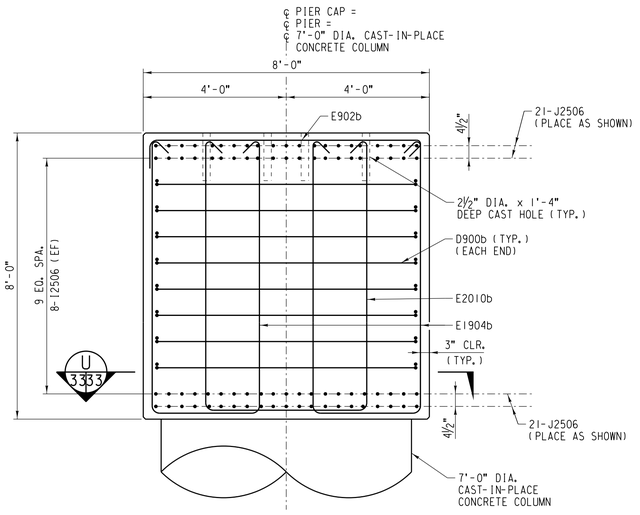
PLAN



DETAIL U
SCALE: ½"=1'-0"

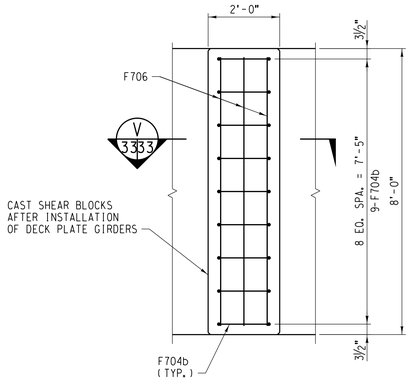


ELEVATION

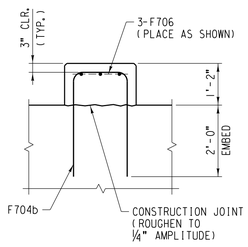


END VIEW

CAST-IN-PLACE CONCRETE PIER CAP
SCALE: ½"=1'-0"



SHEAR BLOCK DETAIL
SCALE: ½"=1'-0"



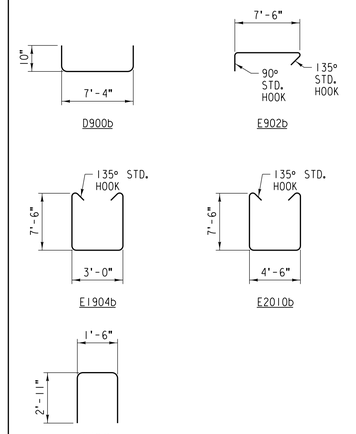
SECTION V 3333
SCALE: ½"=1'-0"

REINFORCING SCHEDULE
(PIER CAPS)

TOTAL	PER PIER CAP	MARK	SIZE	LENGTH	SHAPE
80	16	D900b	#5	9'-0"	
260	52	E902b	#6	9'-2"	
520	104	E1904b	#6	19'-4"	
260	52	E2010b	#6	20'-10"	
90	18	F704b	#7	7'-4"	
30	6	F706	#7	7'-6"	
80	16	J2506	#10	25'-6"	
420	84	J2506	#11	25'-6"	

EST. WT. OF REINFORCING STEEL PER PIER CAP = 19,015 LB.
TOTAL EST. WT. OF REINFORCING STEEL = 95,075 LB.

BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)



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NOTES:
1. FOR COLUMN DETAILS, SEE SHEET NOS. S26, S29 AND S31.
2. MINIMALLY ADJUST REINFORCING AS REQUIRED TO CLEAR CAST HOLES AND COLUMN REINFORCING.
3. EF = EACH FACE

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL (STATUS) 04/20/2023 (DATE)

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P. Dickerson 04/20/2023
CONSULTANT ENGINEER DATE

Nathan P. Dickerson 4-20-23
REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

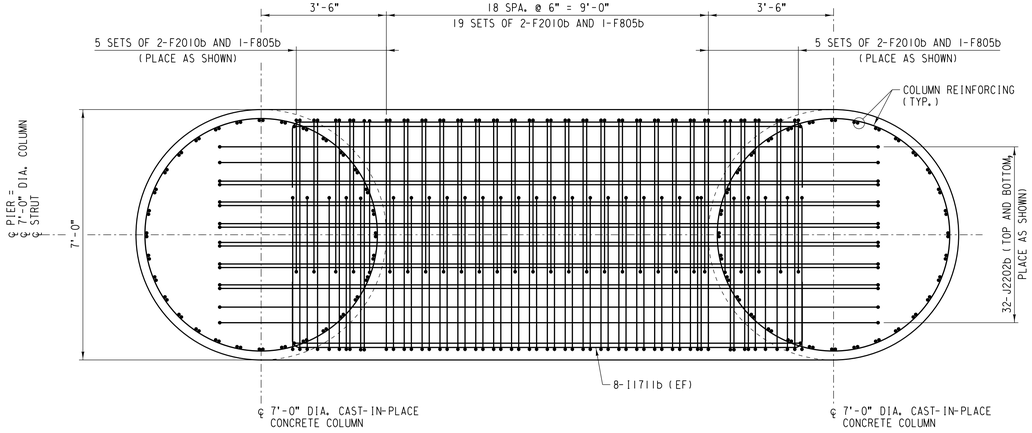
LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

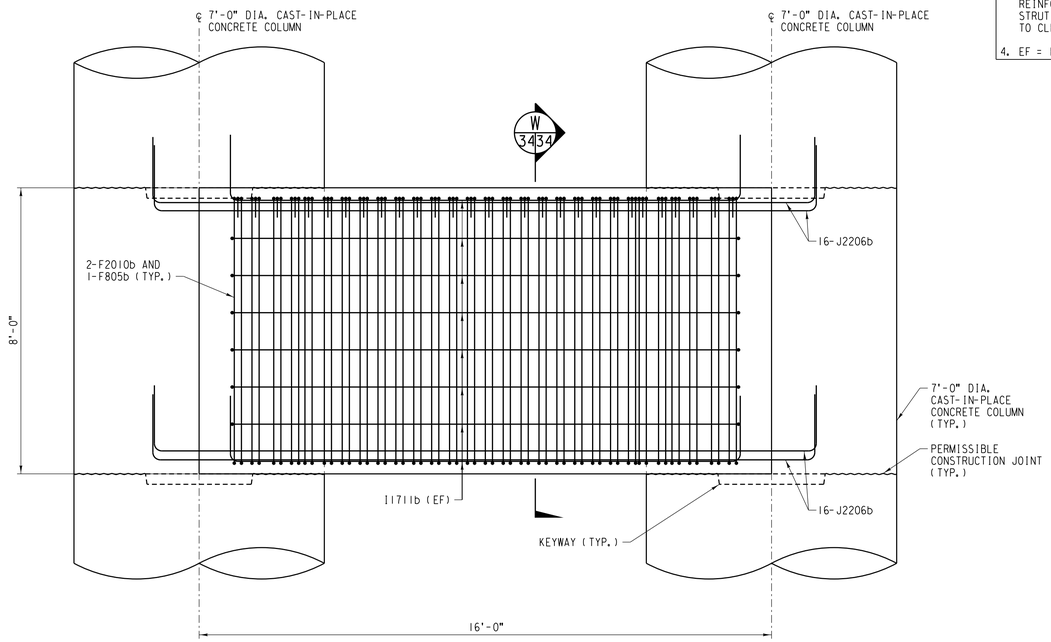
DSN/CHK BY: MJW/LAG	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/MJW	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: S33 of S37	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: CAST-IN-PLACE CONCRETE PIER CAP DETAILS

FILE NAME: pw:I:\HDR_US_National_01\41951\105503017\ark30488_bca.dgn

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PLAN



ELEVATION

(COLUMN REINFORCING NOT SHOWN FOR CLARITY)

CAST-IN-PLACE CONCRETE STRUT

SCALE: ½"=1'-0"

NOTES:
1. SEE SHEET NO. S27 FOR KEYWAY DETAIL.
2. SEE SHEETS NO. S26, S29, AND S31 FOR CAST-IN-PLACE CONCRETE COLUMN DETAILS.
3. ORIENT COLUMN REINFORCING AS SHOWN TO ACCOMODATE STRUT REINFORCING. MINIMALLY ADJUST STRUT REINFORCING AS REQUIRED TO CLEAR COLUMN REINFORCING.
4. EF = EACH FACE

SECTION W 34 34

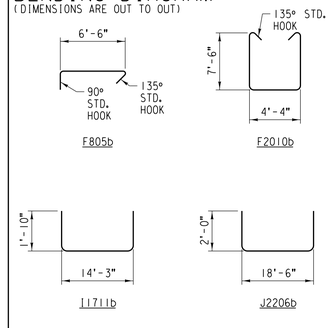
SCALE: ½"=1'-0"

REINFORCING SCHEDULE
(STRUT)

TOTAL	PER STRUT	MARK	SIZE	LENGTH	SHAPE
116	29	F805b	#7	8'-5"	
232	58	F2010b	#7	20'-10"	
64	16	I1711b	#10	17'-11"	
256	64	J2206b	#11	22'-6"	

EST. WT. OF REINFORCING STEEL PER STRUT = 11,855 LB.
EST. WT. OF REINFORCING STEEL = 47,420 LB.

BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)



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105504	41969	123337

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DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	S34 of S37

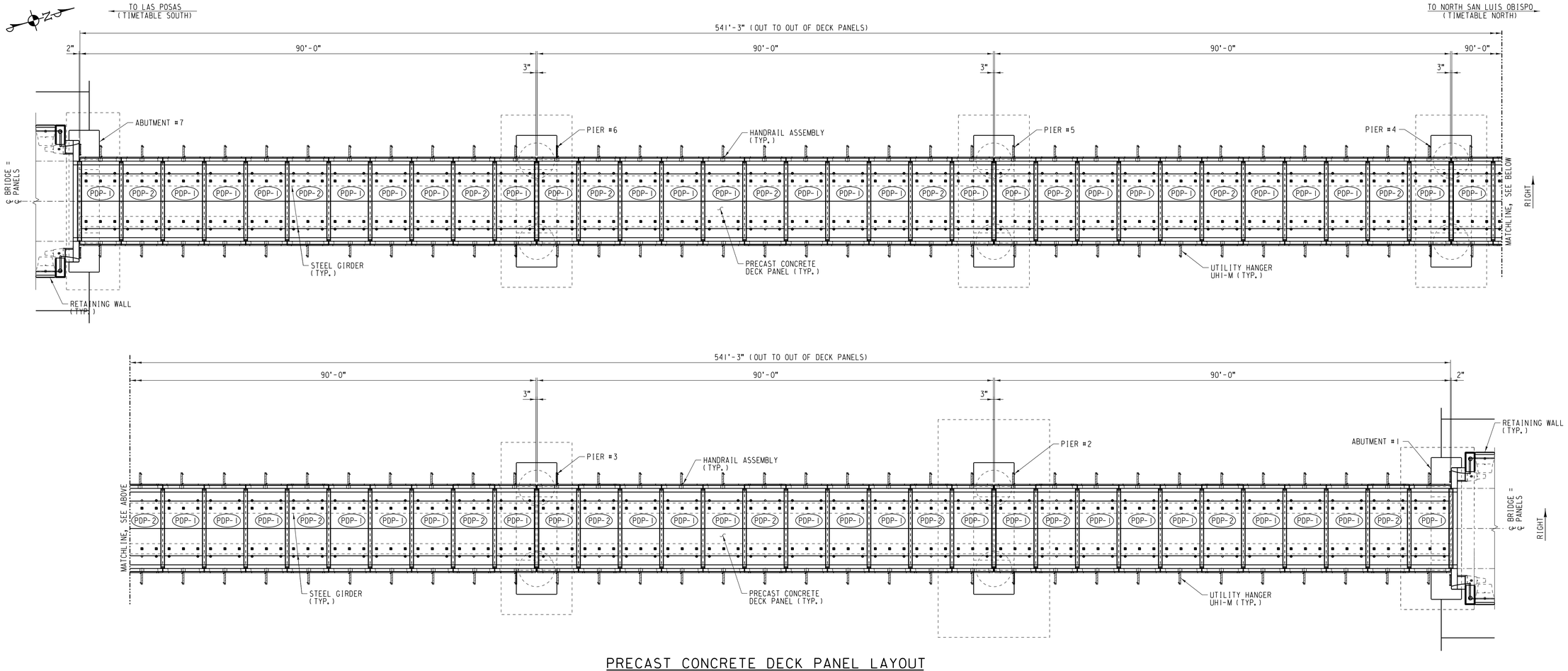
UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: CAST-IN-PLACE CONCRETE PIER STRUT DETAILS

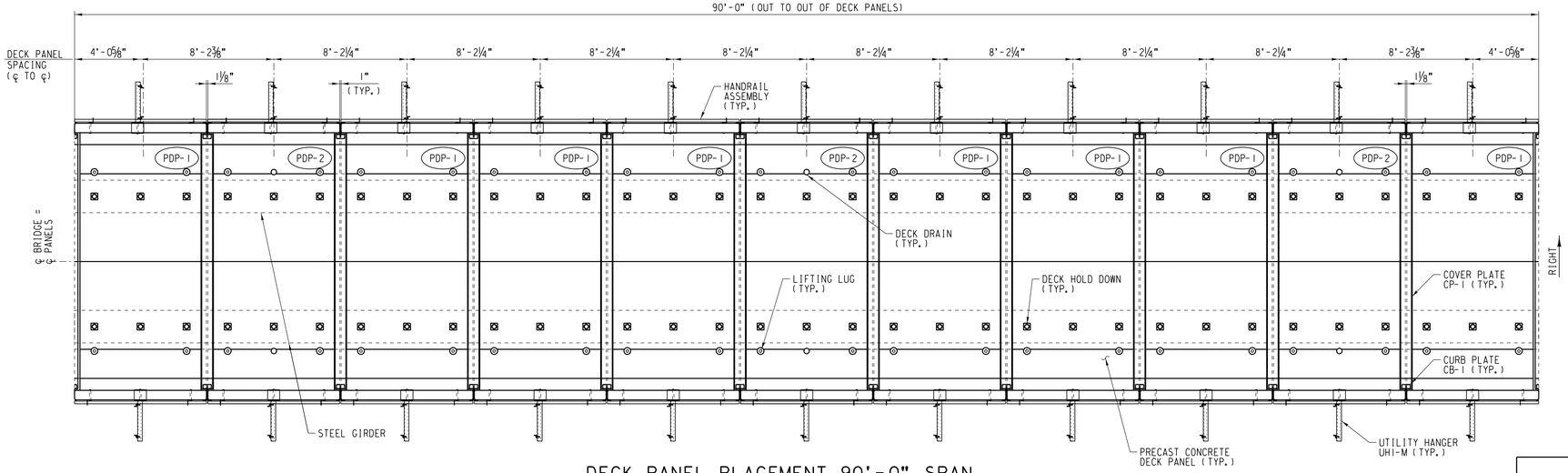
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PRECAST CONCRETE DECK PANEL LAYOUT

SCALE: 1"=10'-0"



DECK PANEL PLACEMENT 90'-0" SPAN

SCALE: 1⁄4"=1'-0"

INSTALLATION SEQUENCE:

1. PRIOR TO CHANGEOUT, ATTACH POLYURETHANE BEARING PADS TO GIRDERS WITH SIKADUR 32, HI-MOD EPOXY ADHESIVE OR APPROVED ALTERNATE. APPLY ADHESIVE AT A RATE OF ONE GALLON PER 80 SQ. FT. PREPARE BONDING SURFACES PER MANUFACTURER'S INSTRUCTIONS. POLYURETHANE BEARING PAD IS PLACED ON STEEL GIRDER CENTERED OVER THE END WELDED FULL THREAD STUDS.
2. APPLY SIKADUR 32, HI-MOD EPOXY ADHESIVE OR APPROVED ALTERNATE JUST PRIOR TO PLACING DECK PANEL. DECK PANEL ARE PLACED ON STEEL GIRDER CENTERED OVER THE END WELD FULL THREAD STUDS.
3. PLACE CAST-IN STEEL PIPE 1 STD. OVER EACH END WELDED FULL THREAD STUD. FILL VOID WITH 4000 PSI NON-SHRINK GROUT TO ¼" BELOW TOP OF EMBED STEEL PIPE 3 STD.
4. AFTER GROUT HARDENS, INSTALL WASHER W200, FLAT CIRCULAR WASHER, AND HVY. HEX NUT. TIGHTEN UNTIL SNUG.
5. FILL POCKET WITH 4000 PSI NON-SHRINK GROUT UNTIL FLUSH WITH TOP OF PRECAST DECK PANEL.
6. APPLY WATERPROOFING AFTER GROUT IN UPPER POCKET HARDENS.

NOTE:
SEE SHEET NO. S19 FOR DECK HOLD DOWN DETAIL.

Nathan P. Dickerson 4-20-23

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DSN/CHK BY:	GPM/BJW
DRAWN/CHK BY:	MAM/GPM
UPRR ENGINEER:	ADS
SHT NO.:	S35 of S37

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 304.88, SANTA BARBARA SUB
6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

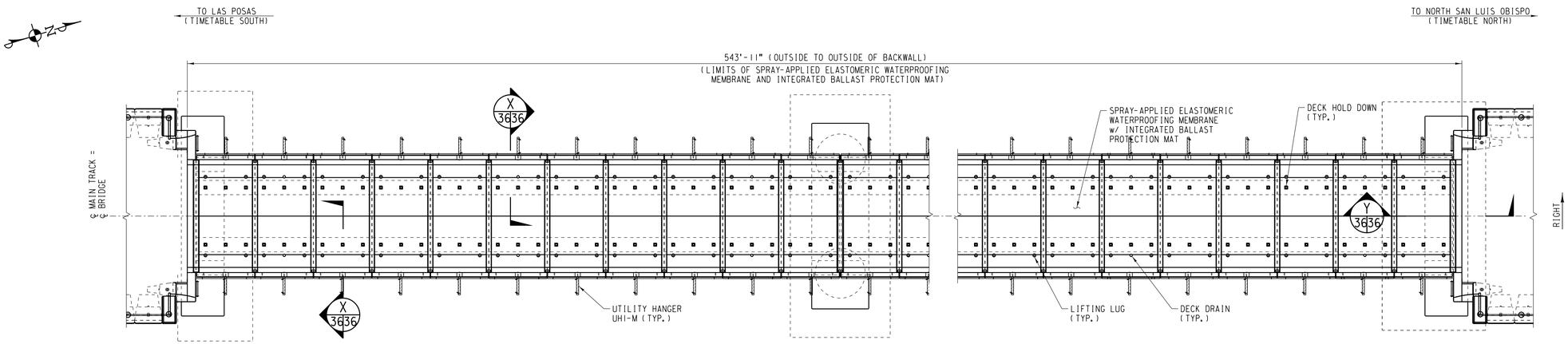
SHEET TITLE:
PRECAST CONCRETE DECK PANEL LAYOUT

FILE NAME: pw://HDR_US_National_DO_41395/D263037/sht30488_bca.dgn

PLOTTED: 4/21/2023 3:32:26 PM

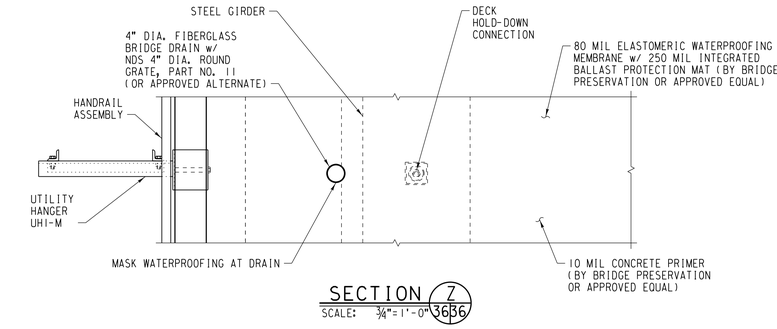
WATERPROOFING SCHEDULE

REQ'D	UNIT	DESCRIPTION
9,670	SQ. FT.	10 MIL CONCRETE PRIMER (BY BRIDGE PRESERVATION OR APPROVED EQUAL)
9,670	SQ. FT.	80 MIL ELASTOMERIC WATERPROOFING MEMBRANE (BY BRIDGE PRESERVATION OR APPROVED EQUAL)
9,670	SQ. FT.	250 MIL INTEGRATED BALLAST PROTECTION MAT (BY BRIDGE PRESERVATION OR APPROVED EQUAL)
1	LOT	BEDDING CAULK APPROVED FOR USE WITH ELASTOMERIC WATERPROOFING WATERPROOFING
1	LOT	BRIDGE DECK JOINT ADHESIVE APPROVED FOR USE WITH ELASTOMERIC WATERPROOFING MEMBRANE
1	LOT	BOND BREAKER TAPE APPROVED FOR USE WITH ELASTOMERIC WATERPROOFING MEMBRANE
100	LIN. FT.	ARTICULUS EXPANSION JOINT OR APPROVED EQUAL (13 LIN. FT. PER JOINT)

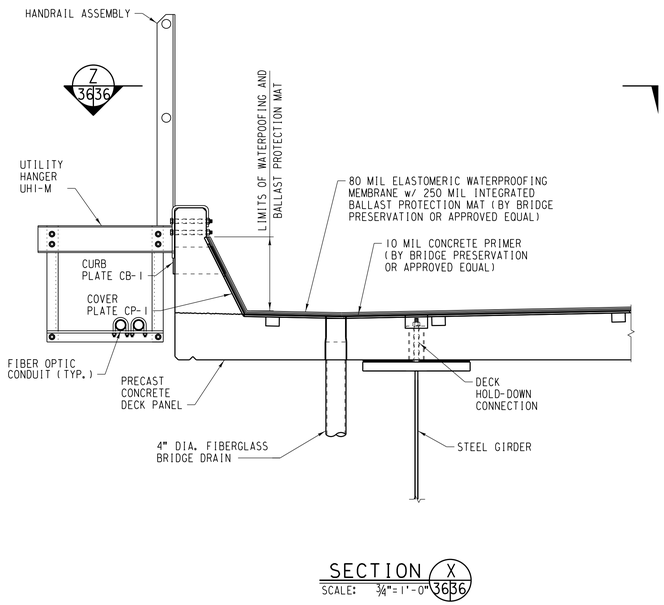


WATERPROOFING PLAN

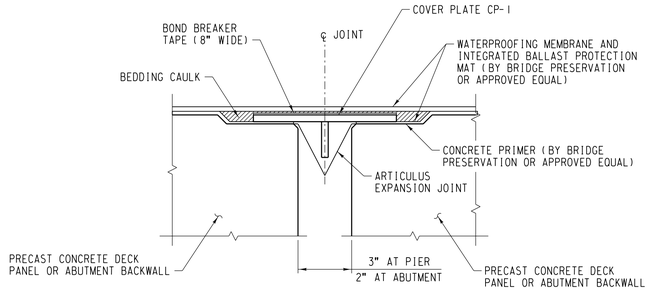
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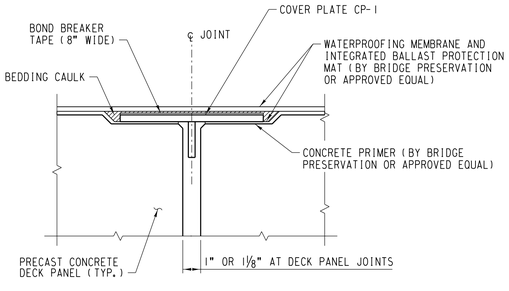
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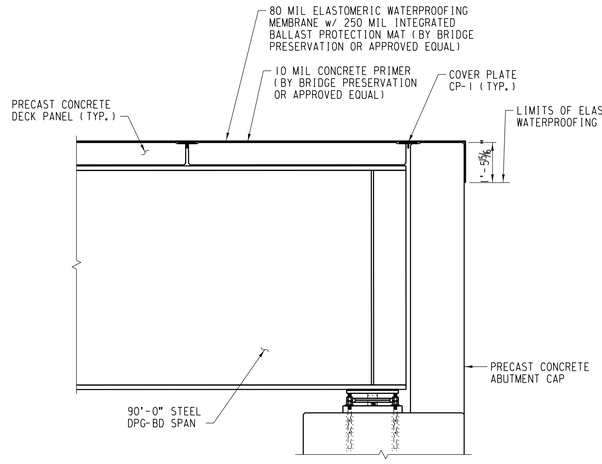
SECTION X 36 36
SCALE: 3/4"=1'-0"



EXPANSION JOINT DETAIL
SCALE: 3"=1'-0"



DECK PANEL JOINT DETAIL
SCALE: 3"=1'-0"



SECTION Y 36 36
SCALE: 3/8"=1'-0"

ABUTMENT #1 SHOWN, ABUTMENT #7 SIMILAR

Nath. P. Dickerson 4-20-23

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UNION PACIFIC

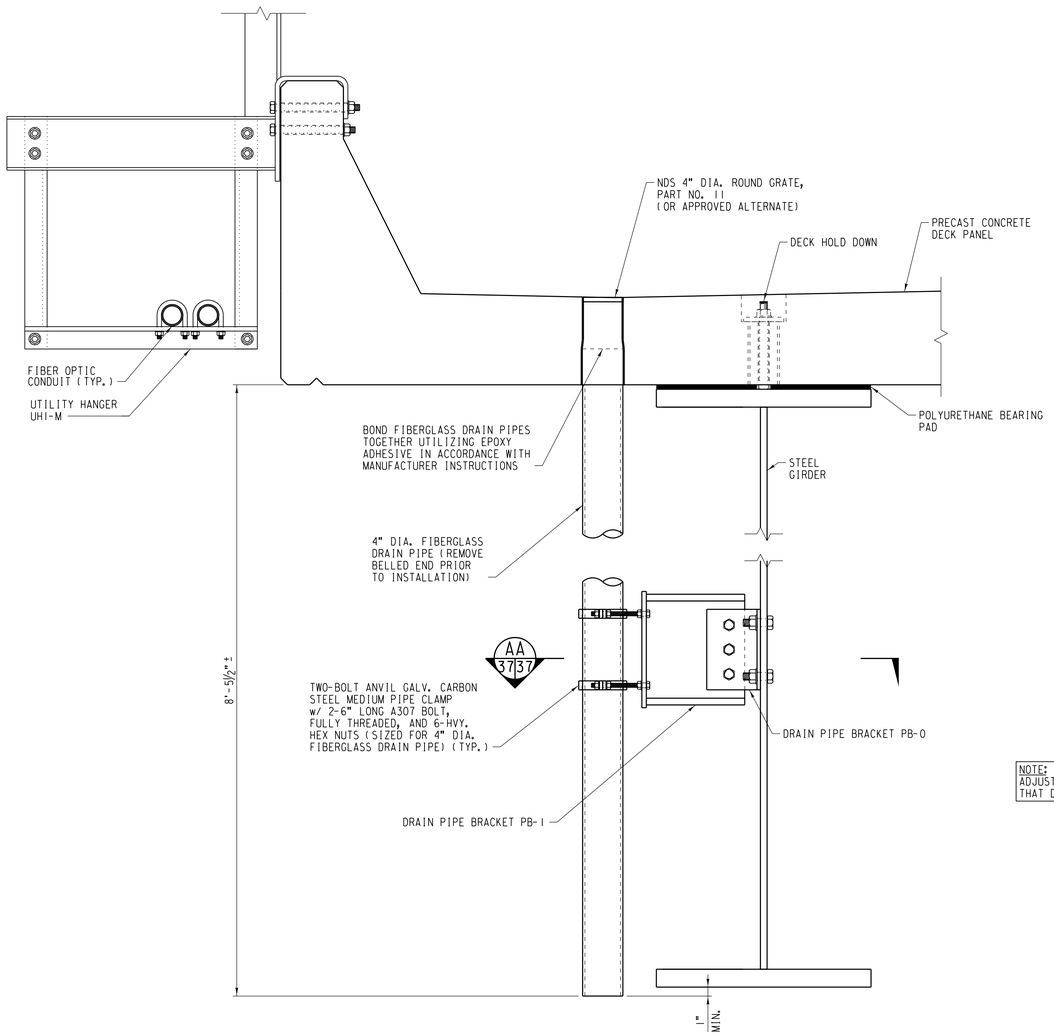
DSN/CHK BY: GPM/BJW	**UNION PACIFIC RAILROAD** — Office of Director Structures Design
DRAWN/CHK BY: MAM/GPM	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
UPRR ENGINEER: ADS	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
SHT NO.: S36 of S37	SHEET TITLE: WATERPROOFING AND DECK DRAINAGE DETAILS

FILE NAME: pw:\\HDR.US.National.01\41951120530317\acad\304BB_bca.dgn

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DECK DRAIN SCHEDULE

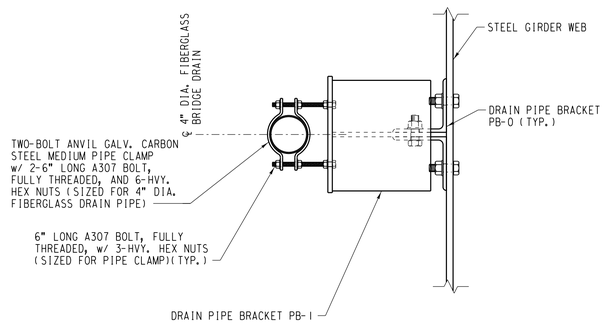
REQ'D	UNIT	DESCRIPTION
36	EA.	4" DIA. x 9'-0" CHAMPION BRIDGE DRAIN FIBERGLASS DRAIN PIPE (PER DETAILS, THIS SHEET)
36	EA.	NDS 4" DIA. ROUND GRATE, PART NO. 11 (PER DETAILS, THIS SHEET)
72	EA.	TWO-BOLT ANVIL GALVANIZED CARBON STEEL MEDIUM PIPE CLAMP FOR 4" DIA. FIBERGLASS DRAIN PIPE w/ 2 - 6" LONG A307 BOLT, FULLY THREATED AND 6-HVY. HEX NUTS
1	LOT	EPOXY ADHESIVE FOR FIBERGLASS BRIDGE DRAIN (PER DETAILS, THIS SHEET)



NOTE:
ADJUST BRACKET CONNECTION SUCH THAT DRAIN PIPE IS PLUMB.

DECK DRAIN DETAIL

SCALE: 1½"=1'-0"



SECTION AA 37 37

SCALE: 1½"=1'-0"

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

DSN/CHK BY:	LAG/MJW
DRAWN/CHK BY:	MAM/LAG
UPRR ENGINEER:	ADS
SHT NO.:	S37 of S37

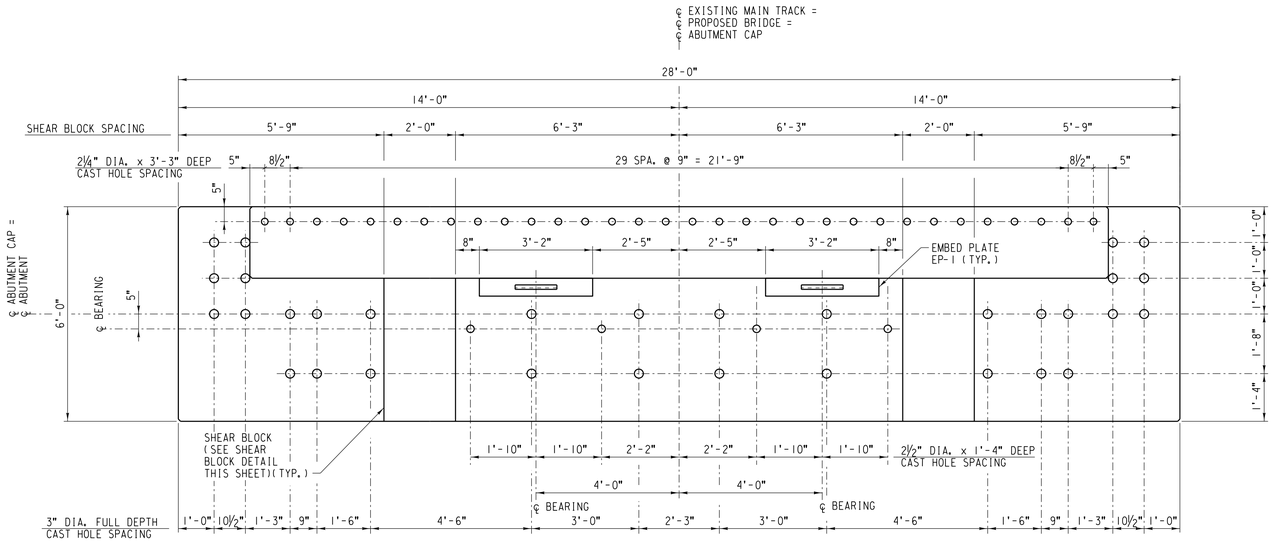
UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

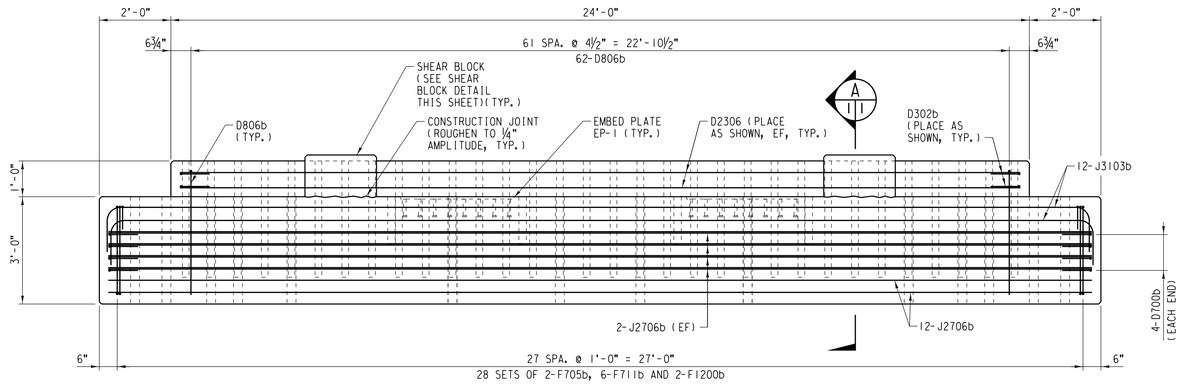
SHEET TITLE: DECK DRAINAGE AND UTILITY SUPPORT DETAILS

FILE NAME: pw://HDR.US.National.01/41951/1026303/17/wn304188_bca.dgn

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PLAN



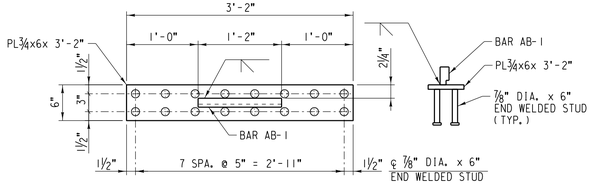
ELEVATION

PRECAST CONCRETE ABUTMENT SEAT DETAILS

SCALE: ½"=1'-0"

MATERIAL SCHEDULE
(QUANTITY PER ABUTMENT SEAT)

REQ'D	UNIT	DESCRIPTION
21	CU. YD.	5,000 PSI CONCRETE FOR ABUTMENT SEAT (PER NOTES, SHEET NO. S6 AND DETAILS, THIS SHEET)
1	LOT	REINFORCING STEEL FOR ABUTMENT SEAT (PER NOTES, SHEET NO. S6 AND SCHEDULE, THIS SHEET)
2	EA.	EMBED PLATE EP-1 (PER NOTES, SHEET NO. S6 AND DETAIL, THIS SHEET)



PLAN SECTION

EMBED PLATE EP-1

SCALE: 1"=1'-0"

EST. WT. = 64.9 LB.
GALVANIZE AFTER FABRICATION

NOTE:
MINIMALLY ADJUST REINFORCING TO CLEAR CAST HOLES.

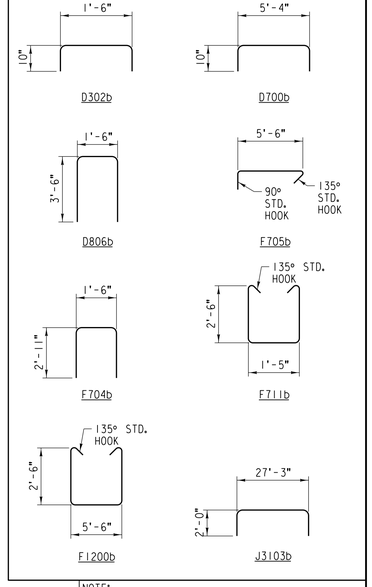
SECTION A
SCALE: ½"=1'-0"
(SHEAR BLOCK NOT SHOWN FOR CLARITY)

REINFORCING SCHEDULE
(QUANTITY PER ABUTMENT SEAT)

TOTAL	MARK	SIZE	LENGTH	SHAPE
4	D302b	#5	3'-2"	
8	D700b	#5	7'-0"	
62	D806b	#5	8'-6"	
4	D2306	#5	23'-6"	
6	F306	#7	3'-6"	
10	F704b	#7	7'-4"	
56	F705b	#7	7'-5"	
168	F711b	#7	7'-11"	
56	F1200b	#7	12'-0"	
40	J2706	#11	27'-6"	
24	J3103b	#11	31'-3"	

EST. WT. OF REINFORCING STEEL = 15,685 LB.

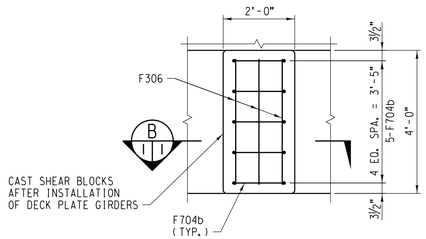
BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)



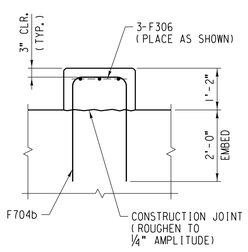
NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.

EST. WT. OF PRECAST CONCRETE

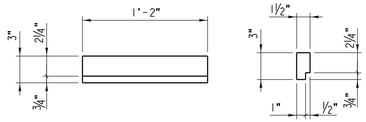
PRECAST CONCRETE ABUTMENT SEAT = 82,800 LB. (41.4 TON)



SHEAR BLOCK DETAIL
SCALE: ½"=1'-0"



SECTION B
SCALE: ½"=1'-0"



BAR AB-1
SCALE: 1½"=1'-0"
EST. WT. = 17.9 LB.
ASTM A36
GALVANIZE AFTER FABRICATION

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

Nathan P. Dickerson 4-20-23
REGISTERED PROFESSIONAL ENGINEER — NATHAN P. DICKERSON — No. C71974 — Exp. 12/31/23 — CIVIL — STATE OF CALIFORNIA

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	P1 of P4

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: PRECAST CONCRETE ABUTMENT SEAT

FILE NAME: pw://HDR_US.Net:ora1.01/41951100530317/wnk30488.bcoa.dgn

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MATERIAL SCHEDULE
(QUANTITY PER ABUTMENT BACKWALL)

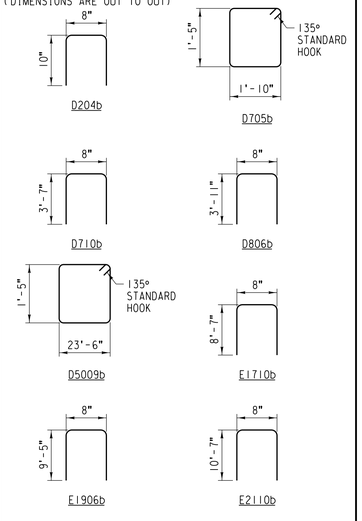
REQ'D	UNIT	DESCRIPTION
13	CU. YD.	5,000 PSI CONCRETE FOR ABUTMENT BACKWALL (PER NOTES, SHEET NO. S6 AND DETAILS, THIS SHEET)
1	LOT	REINFORCING STEEL FOR ABUTMENT BACKWALL (PER NOTES, SHEET NO. S6 AND SCHEDULE, THIS SHEET)

REINFORCING SCHEDULE
(QUANTITY PER ABUTMENT BACKWALL)

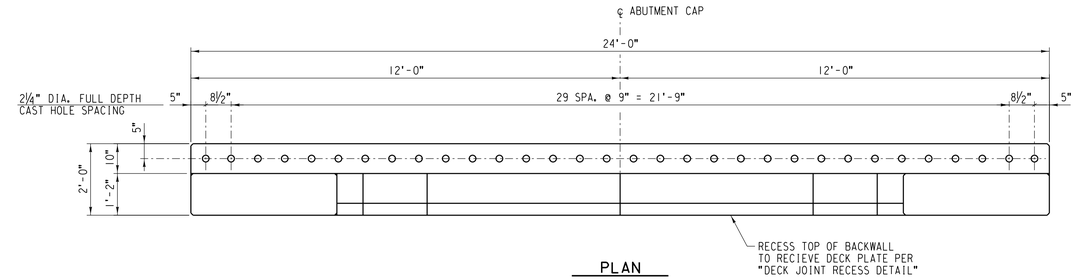
TOTAL	MARK	SIZE	LENGTH	SHAPE
12	D204b	#5	2'-4"	U
4	D207	#5	2'-7"	—
62	D300	#5	3'-0"	—
32	D705b	#5	7'-5"	▭
2	D710b	#5	7'-10"	U
2	D806b	#5	8'-6"	U
12	D2306	#5	23'-6"	—
4	D5009b	#5	50'-9"	▭
30	E1710b	#6	17'-10"	U
2	E1906b	#6	19'-6"	U
16	E2110b	#6	21'-10"	U

EST. WT. OF REINFORCING STEEL = 2,410 LB.

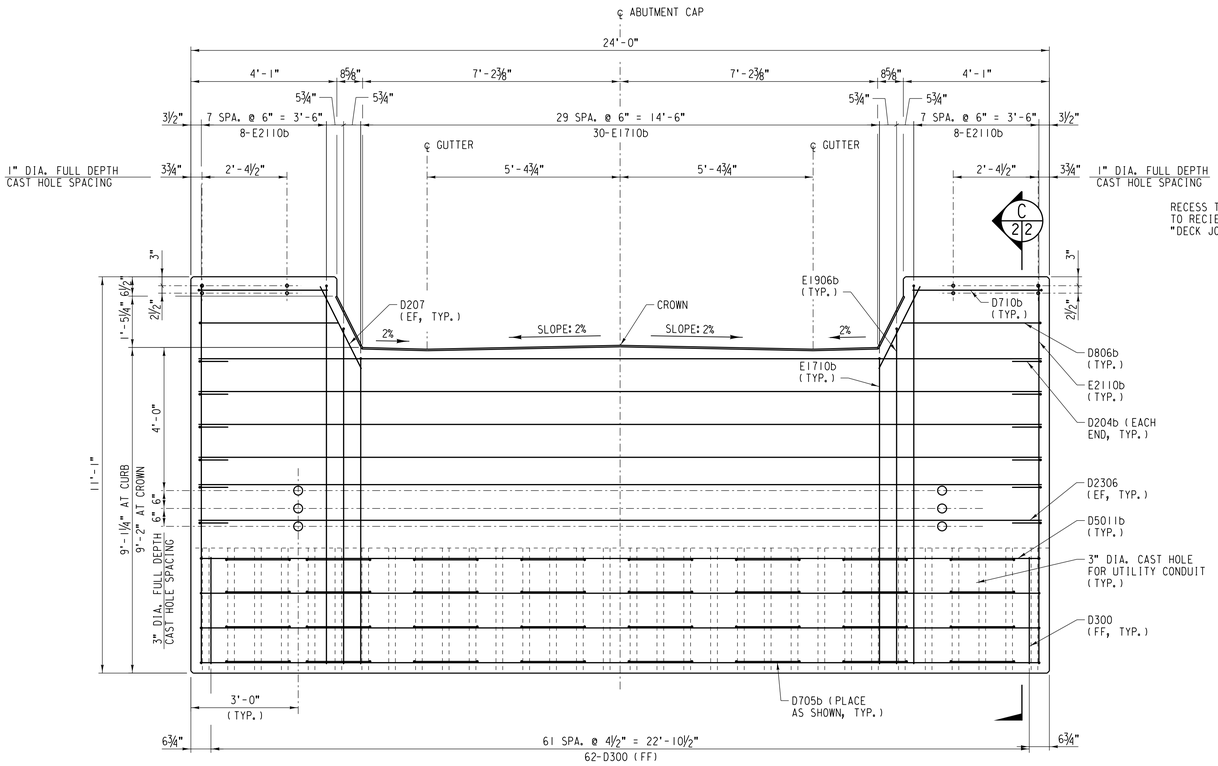
BENDING DIAGRAM
(DIMENSIONS ARE OUT TO OUT)



NOTE:
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.

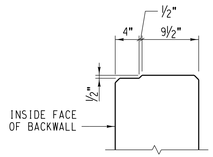


PLAN

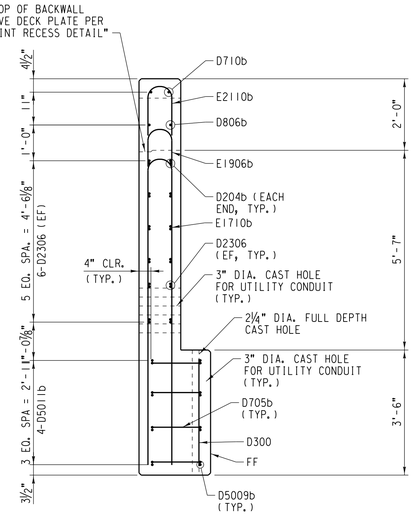


ELEVATION

PRECAST CONCRETE ABUTMENT BACKWALL DETAILS
SCALE: ½"=1'-0"



DECK JOINT RECESS DETAIL
SCALE: 1"=1'-0"



SECTION C 2 2
SCALE: ½"=1'-0"

EST. WT. OF PRECAST CONCRETE
PRECAST CONCRETE ABUTMENT BACKWALL = 51,695 LB. (25.9 TON)

NOTE:
1. MINIMALLY ADJUST REINFORCING TO CLEAR CAST HOLES.
2. FF = FAR FACE

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

Nathan P. Dickerson 4-20-23
REGISTERED PROFESSIONAL ENGINEER — NATHAN P. DICKERSON — No. C71974 — Exp. 12/31/23 — CIVIL — STATE OF CALIFORNIA

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	P2 of P4

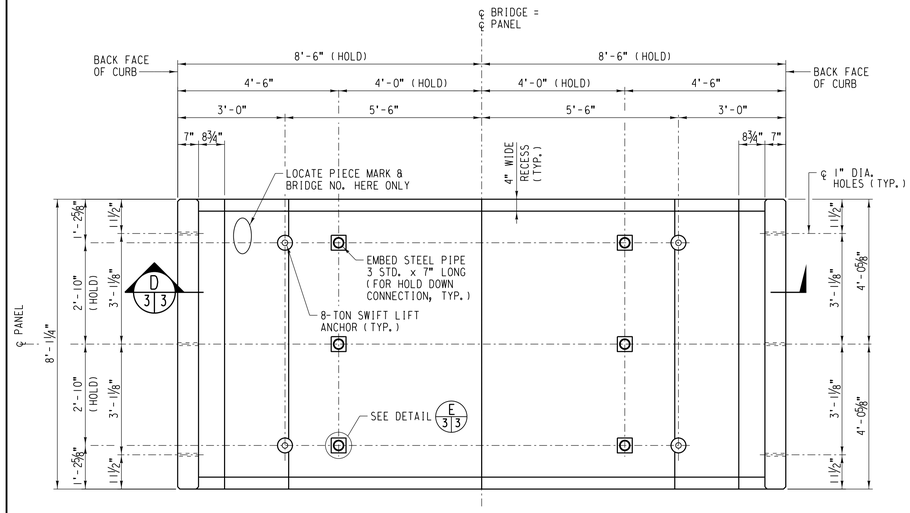
UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: PRECAST CONCRETE ABUTMENT BACKWALL

FILE NAME: pw:\\HDR_US.National.DL\4195\10263017\ark30488_bca.dgn

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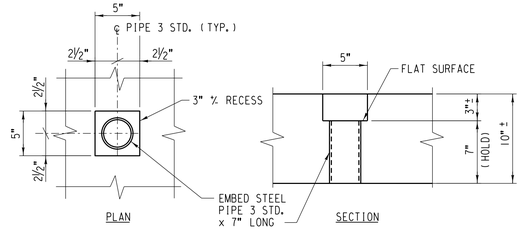


PRECAST CONCRETE DECK PANEL PDP-1

SCALE: ½"=1'-0"

NOTE:
ACCEPTABLE TOLERANCES OF HOLD DIMENSIONS FROM ℄ PANEL TO:

- ℄ HOLES FOR HOLD-DOWN CONNECTION = -⅛"/+½"
- BACK FACE OF CURB = -0"/+½"



DETAIL E 3|3

SCALE: 1½"=1'-0"

(DECK HOLD DOWN VOID)

NOTES:
1. PIECE MARK SHALL INCLUDE ITEM NAME, DATE MANUFACTURED, NAME OF MANUFACTURER, AND ACTUAL LIFTING WEIGHT.
2. FOR PRESTRESSED CONCRETE NOTES, SEE SHEET NO. S6.

REINFORCING SCHEDULE

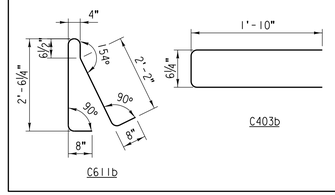
(QUANTITY PER DECK PANEL)

REQ'D	MARK	SIZE	LENGTH	SHAPE
44	C403b	#4	4'-2¼"	
44	C611b	#4	6'-10¾"	
76	C710	#4	7'-10"	
44	C1609	#4	16'-9"	

EST. WT. OF REINFORCING STEEL = 1,220 LB.

BENDING DIAGRAM

(DIMENSIONS ARE OUT TO OUT)



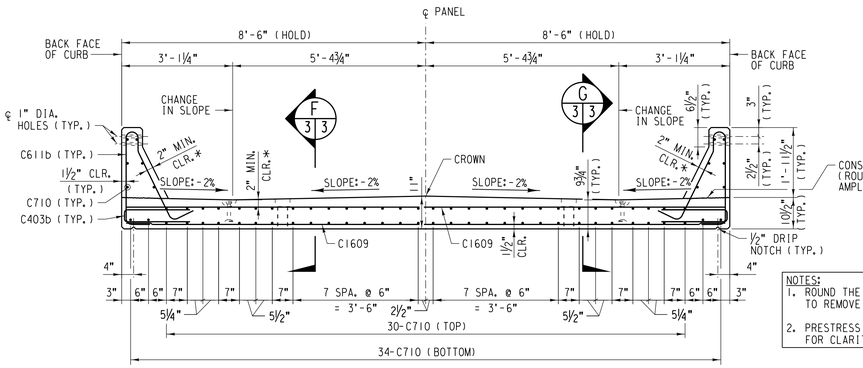
MATERIAL SCHEDULE

(QUANTITY PER DECK PANEL)

REQ'D	UNIT	DESCRIPTION
4.4	CU. YD.	6,000 PSI CONCRETE FOR PANEL
1.0	CU. YD.	4,000 PSI CONCRETE FOR CURBS
1	LOT	REINFORCING STEEL (PER SCHEDULE, THIS SHEET)
40	EA.	½" DIA. x 17'-0" 270 KSI LOW RELAXATION PRESTRESSING STRAND
4	EA.	8-TON SWIFT LIFT ANCHOR (6¾" LONG)
6	EA.	STEEL PIPE 3 STD. x 7" LONG
6	EA.	STEEL PIPE 1 STD. x 7½" LONG
6	EA.	WASHER W200 (PER DETAILS, THIS SHEET)
6	EA.	⅞" DIA. ASTM A563 HVY. HEX NUT, GALVANIZED
6	EA.	⅞" DIA. ASTM F435 CIRCULAR WASHER, GALVANIZED
6	EA.	½" x ⅞" DIA. NEOPRENE BEARING PAD (50 DUROMETER)
6	EA.	½" x 1½" DIA. NEOPRENE WASHER (50 DUROMETER) w/ ⅞" DIA. HOLE

EST. WT. OF PRECAST CONCRETE

PRECAST CONCRETE DECK PANEL PDP-1 = 21,900 LB. (11.0 TON)

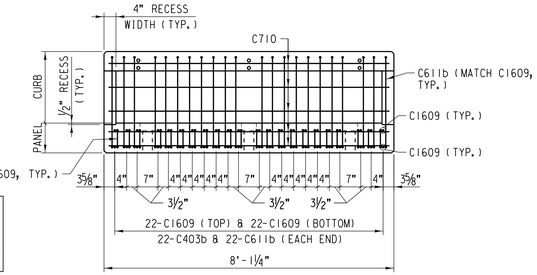


NOTE:
* AT THE ½" RECESS, MINIMUM CLEAR ON THESE SURFACE SHALL BE 1½".

SECTION D 3|3

SCALE: ½"=1'-0"

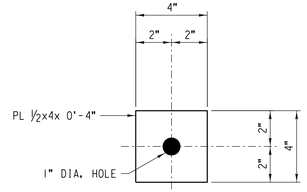
NOTES:
1. ROUND THE TOP OF THE CROWN TO REMOVE HARD EDGE.
2. PRESTRESSING STRANDS NOT SHOWN FOR CLARITY.



SECTION F 3|3

SCALE: 1½"=1'-0"

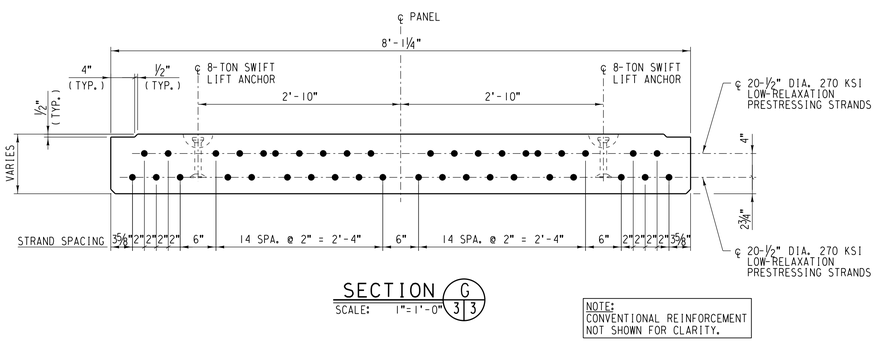
NOTE:
PRESTRESSING STRANDS NOT SHOWN FOR CLARITY.



WASHER W200

SCALE: 3"=1'-0"

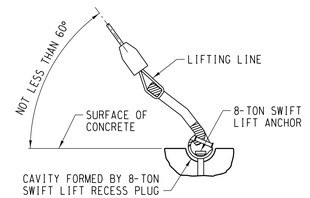
EST. WT. = 2.3 LB. EA.



SECTION G 3|3

SCALE: 1"=1'-0"

NOTE:
CONVENTIONAL REINFORCEMENT NOT SHOWN FOR CLARITY.



TYPICAL LIFTING DETAIL

SCALE: NONE

NOTE:
8-TON SWIFT LIFT RECESS PLUGS, ANCHORS AND LIFTING EYES ARE AVAILABLE FROM DAYTON SUPERIOR CORP., 1125 BYERS ROAD., MIAMISBURG, OHIO 45342, TELEPHONE (937) 866-0711. THE MATERIALS FOR THIS LIFTING SYSTEM ARE NOT INCLUDED IN THE BILL OF MATERIAL BUT ARE TO BE ORDERED AS REQUIRED.

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL — STATUS — 04/20/2023 DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:

Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

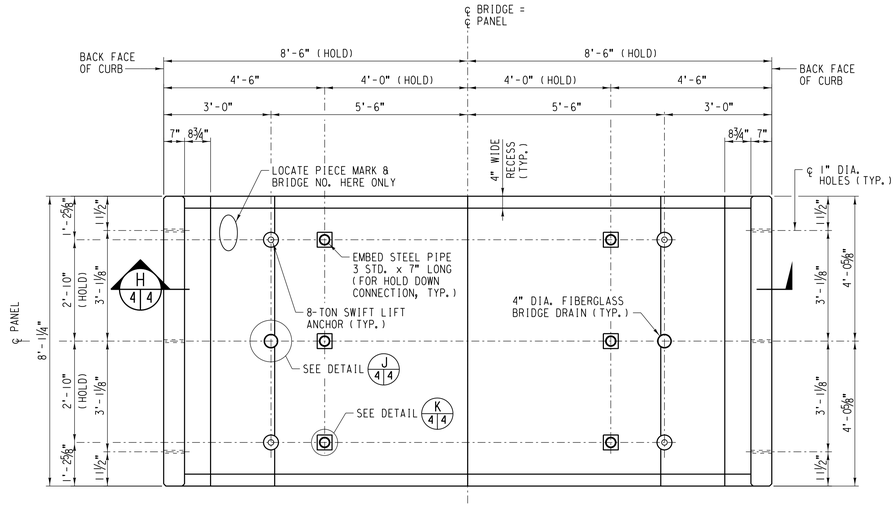
LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY: GPM/BJW	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/GPM	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: P3 of P4	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: PRECAST CONCRETE DECK PANEL DETAILS (SHEET 1 OF 2)

FILE NAME: pw://HDR.US.Network.01/41951/105503017/ark30488.bcd.dgn

PLOTTED: 4/21/2023 3:32:29 PM

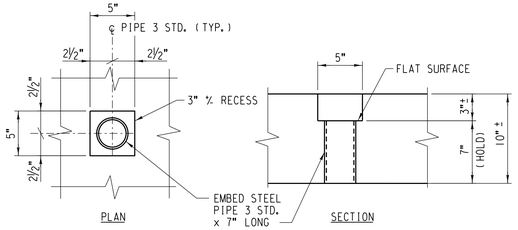


PRECAST CONCRETE DECK PANEL PDP-2

SCALE: ½"=1'-0"

NOTE:
ACCEPTABLE TOLERANCES OF HOLD DIMENSIONS FROM ℄ PANEL TO:

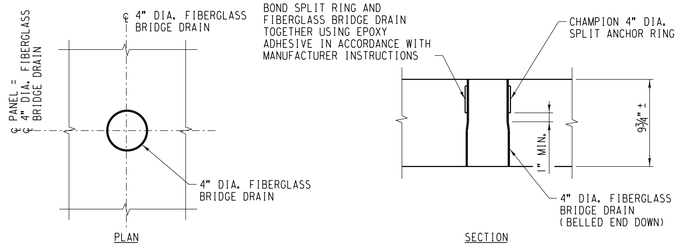
- ℄ HOLES FOR HOLD-DOWN CONNECTION = -⅛"/+½"
- BACK FACE OF CURB = -0"/+½"



DETAIL K 4|4

SCALE: 1½"=1'-0"

(DECK HOLD DOWN VOID)



DETAIL J 4|4

SCALE: 1½"=1'-0"

(DRAIN HOLE)

NOTES:
1. PIECE MARK SHALL INCLUDE ITEM NAME, DATE MANUFACTURED, NAME OF MANUFACTURER, AND ACTUAL LIFTING WEIGHT.
2. FOR PRESTRESSED CONCRETE NOTES, SEE SHEET NO. S6.

REINFORCING SCHEDULE

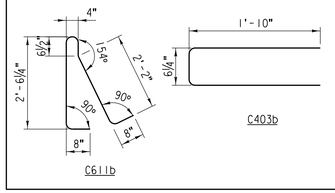
(QUANTITY PER DECK PANEL)

REQ'D	MARK	SIZE	LENGTH	SHAPE
44	C403b	#4	4'-2¼"	
44	C611b	#4	6'-10¾"	
76	C710	#4	7'-10"	
44	C1609	#4	16'-9"	

EST. WT. OF REINFORCING STEEL = 1,220 LB.

BENDING DIAGRAM

(DIMENSIONS ARE OUT TO OUT)



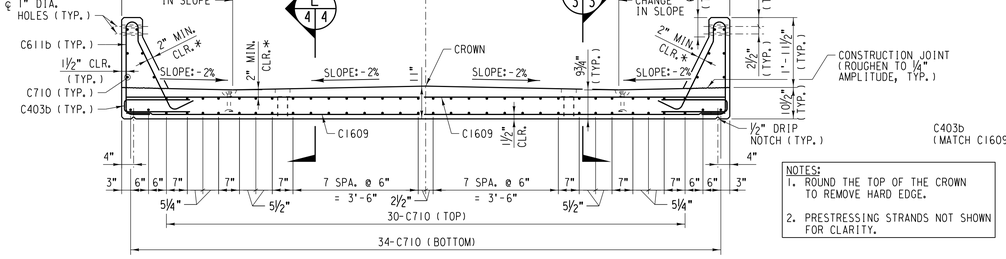
MATERIAL SCHEDULE

(QUANTITY PER DECK PANEL)

REQ'D	UNIT	DESCRIPTION
4.4	CU. YD.	6,000 PSI CONCRETE FOR PANEL
1.0	CU. YD.	4,000 PSI CONCRETE FOR CURBS
1	LOT	REINFORCING STEEL (PER SCHEDULE, THIS SHEET)
40	EA.	½" DIA. x 17'-0" 270 KSI LOW RELAXATION PRESTRESSING STRAND
4	EA.	8-TON SWIFT LIFT ANCHOR (6¾" LONG)
6	EA.	STEEL PIPE 3 STD. x 7" LONG
6	EA.	STEEL PIPE 1 STD. x 7½" LONG
2	EA.	4" DIA. x 9¾" CHAMPION BRIDGE DRAIN FIBERGLASS DRAIN PIPE
2	EA.	4" DIA. CHAMPION BRIDGE DRAIN SPLIT ANCHOR RING
1	LOT	EPOXY ADHESIVE FOR FIBERGLASS BRIDGE DRAIN
6	EA.	WASHER W200 (PER DETAILS, SHEET P3)
6	EA.	⅞" DIA. ASTM A563 HVY. HEX NUT, GALVANIZED
6	EA.	⅞" DIA. ASTM F435 CIRCULAR WASHER, GALVANIZED
6	EA.	½" x ⅞" DIA. NEOPRENE BEARING PAD (50 DUROMETER)
6	EA.	½" x 1½" DIA. NEOPRENE WASHER (50 DUROMETER) w/ ⅞" DIA. HOLE

EST. WT. OF PRECAST CONCRETE

PRECAST CONCRETE DECK PANEL PDP-2 = 21,900 LB. (11.0 TON)

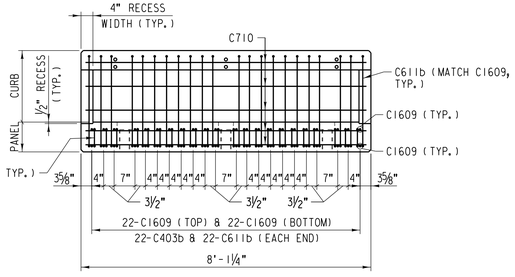


SECTION H 4|4

SCALE: ½"=1'-0"

NOTE:
* AT THE ½" RECESS, MINIMUM CLEAR ON THESE SURFACE SHALL BE 1½".

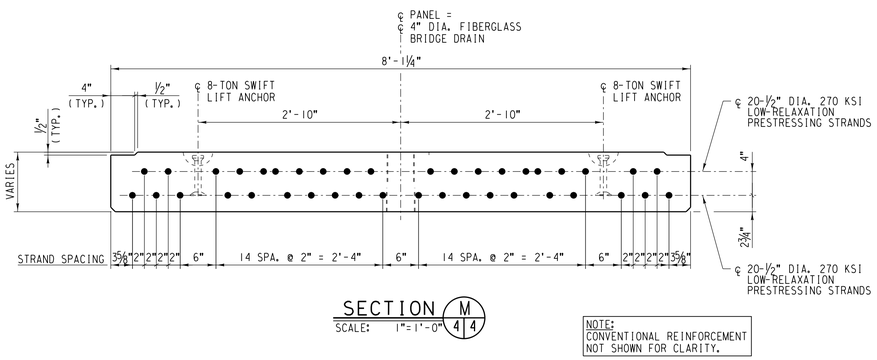
NOTES:
1. ROUND THE TOP OF THE CROWN TO REMOVE HARD EDGE.
2. PRESTRESSING STRANDS NOT SHOWN FOR CLARITY.



SECTION L 4|4

SCALE: ½"=1'-0"

NOTE:
PRESTRESSING STRANDS NOT SHOWN FOR CLARITY.



SECTION M 4|4

SCALE: 1"=1'-0"

NOTE:
CONVENTIONAL REINFORCEMENT NOT SHOWN FOR CLARITY.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL — STATUS — 04/20/2023 DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:

Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

4-20-23

REGISTERED PROFESSIONAL ENGINEER NATHAN P. DICKERSON No. C71974 Exp. 12/31/23 CIVIL STATE OF CALIFORNIA

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

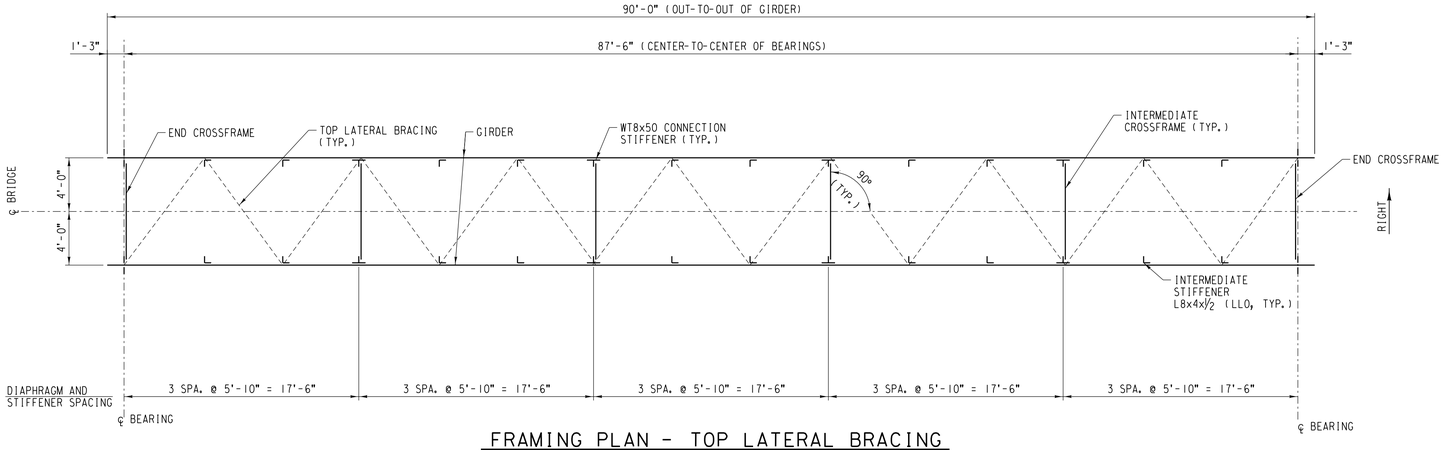
LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY: GPM/BJW	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/GPM	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: P4 of P4	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: PRECAST CONCRETE DECK PANEL DETAILS (SHEET 2 OF 2)

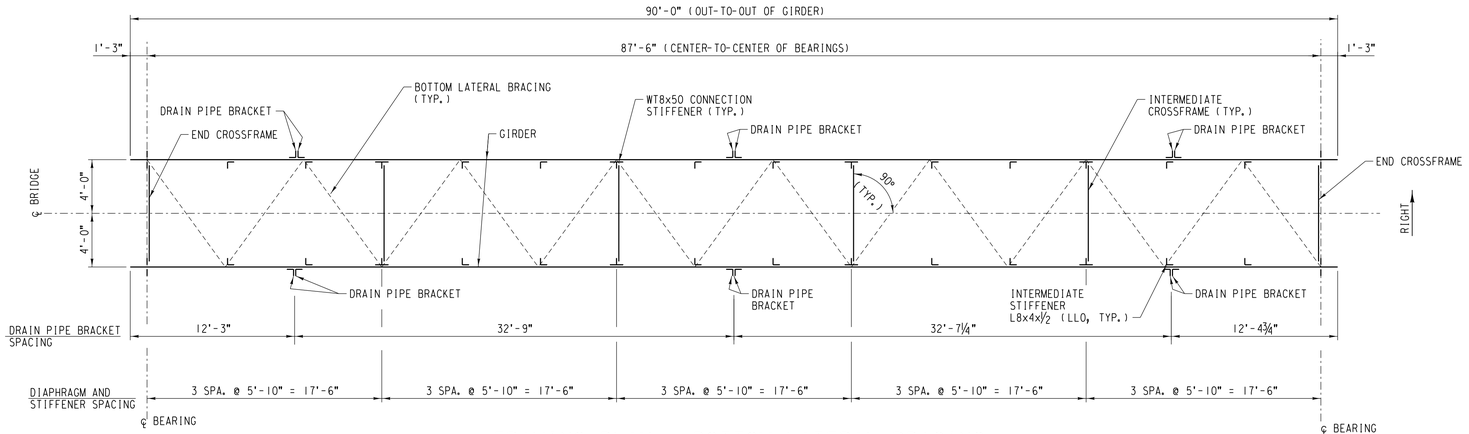
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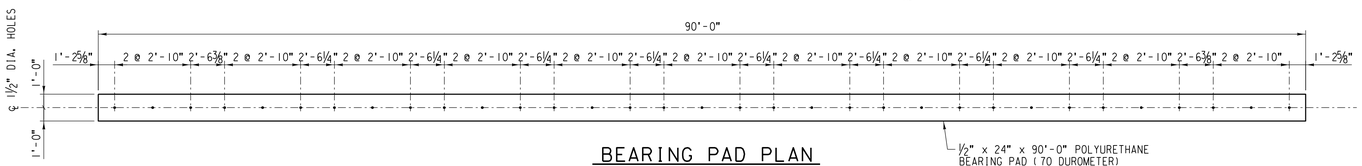
FRAMING PLAN - TOP LATERAL BRACING

SCALE: 3/16"=1'-0"



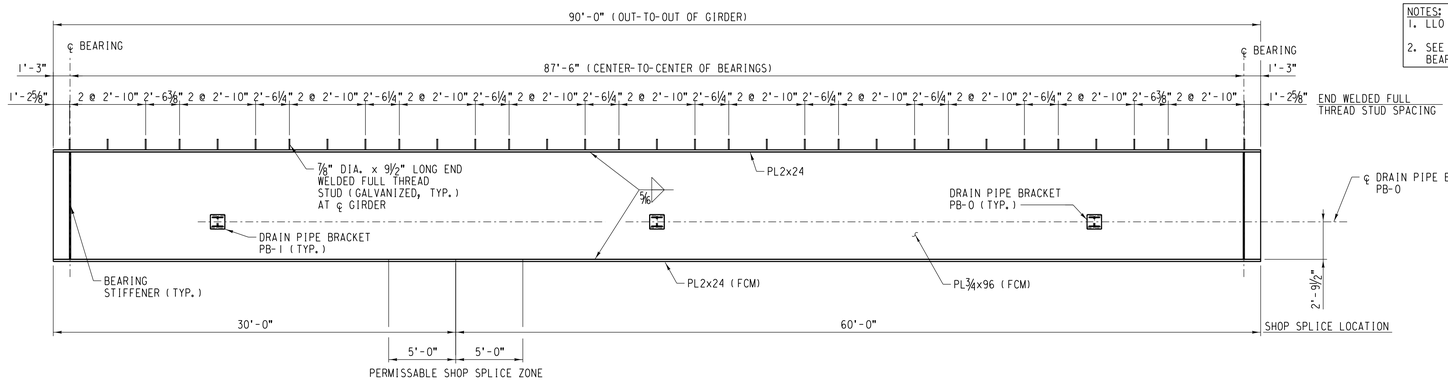
FRAMING PLAN - BOTTOM LATERAL BRACING

SCALE: 3/16"=1'-0"



BEARING PAD PLAN

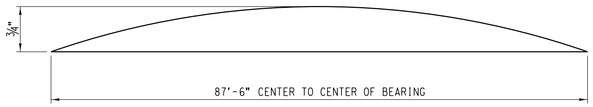
SCALE: 3/16"=1'-0"



GIRDER ELEVATION

SCALE: 3/16"=1'-0"

NOTES:
1. LLO = LONG LEG OUTSTANDING
2. SEE SHEET S-19 FOR POLYURETHANE BEARING PAD JOINT DETAIL



PARABOLIC CAMBER DIAGRAM

SCALE: NONE

TABLE OF MEMBERS AND LOADING

MEMBER	MOMENT (K-FT)	SHEAR (K)	SECTION
DECK PL GIRDER	DL = 4,604 LL = 5,400 I = 1,836 TOTAL = 11,840	DL = 204 LL = 282 I = 96 TOTAL = 582	TOP FLANGE PL2x24 WEB PL¾x96 BOTTOM FLANGE PL2x24

DL = DEAD LOAD (INCLUDES 30" OF BALLAST)
LL = COOPER E-80 LIVE LOAD
I = IMPACT (INCLUDES VERTICAL EFFECTS AND ROCKING EFFECT)

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER NATHAN P. DICKERSON No. C71974 Exp. 12/31/23 CIVIL STATE OF CALIFORNIA

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2023 DATE

FDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

DSN/CHK BY:	LAG/MJW
DRAWN/CHK BY:	MAM/LAG
UPRR ENGINEER:	ADS
SHT NO.:	F1 of F6

UNION PACIFIC RAILROAD

Office of Director Structures Design

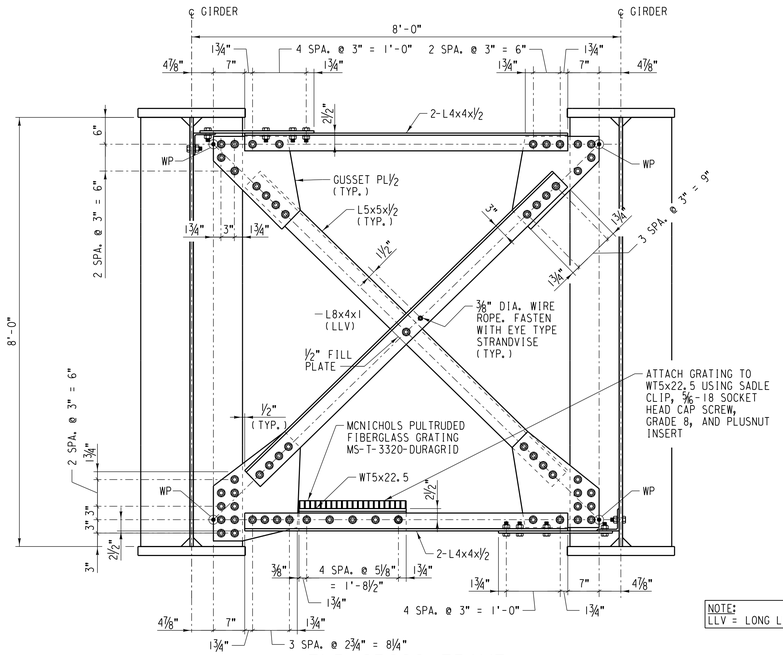
LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB

6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: 90' DPG SPAN FRAMING DETAILS

FILE NAME: pw://HDR_US_National.01:41951:100630317:ank30488.bccs.dgn

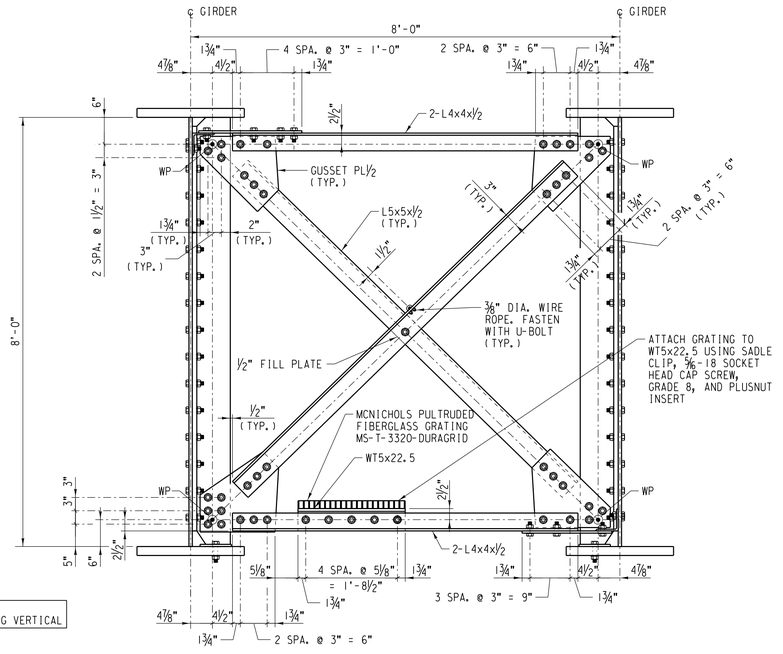
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END CROSS FRAME

SCALE: ¾"=1'-0"

(LATERAL BRACING NOT SHOWN FOR CLARITY)

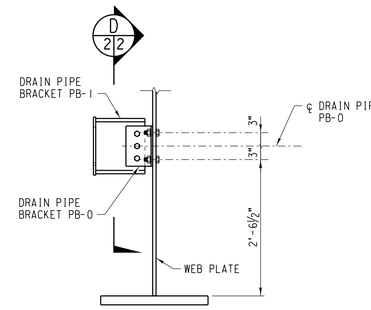


INTERMEDIATE CROSS FRAME

SCALE: ¾"=1'-0"

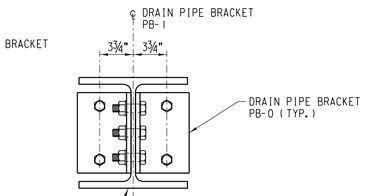
(LATERAL BRACING NOT SHOWN FOR CLARITY)

NOTE:
LLV = LONG LEG VERTICAL



DRAIN PIPE BRACKET DETAIL

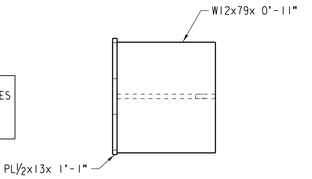
SCALE: ¾"=1'-0"

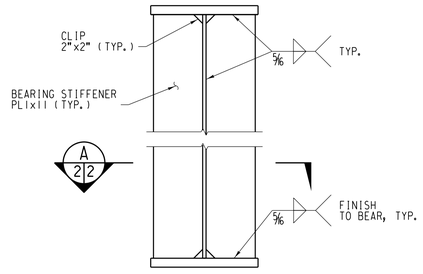


SECTION D 2 2

SCALE: 1½"=1'-0"

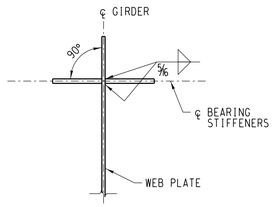
NOTE:
* SIZE AND SPACE PIPE CLAMP HOLES FOR AN ANVIL GALVANIZED CARBON STEEL MEDIUM PIPE CLAMP FOR 4" DIA. FIBERGLASS PIPE.





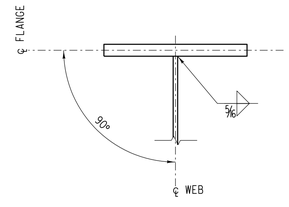
BEARING STIFFENER DETAIL

SCALE: ¾"=1'-0"



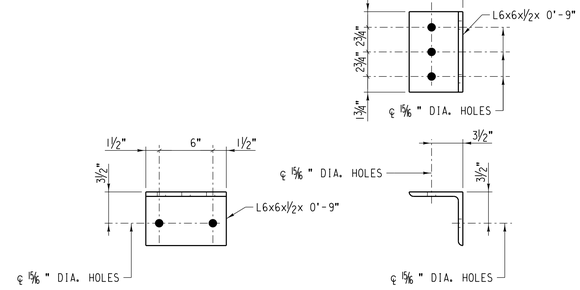
SECTION A 2 2

SCALE: ¾"=1'-0"



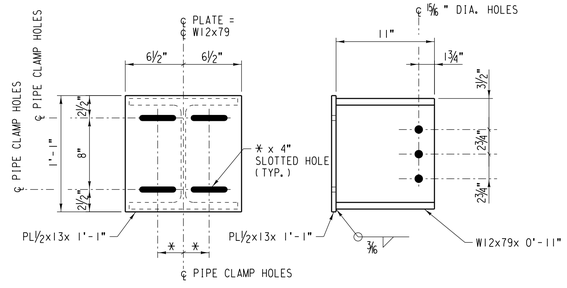
FLANGE TO WEB WELD DETAIL

SCALE: 1"=1'-0"



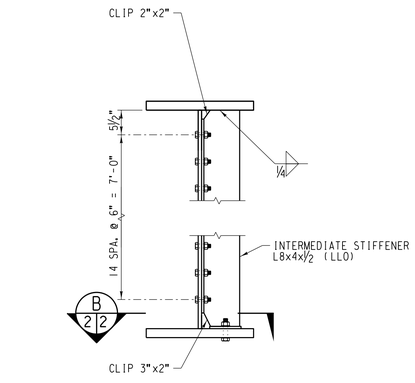
DRAIN PIPE BRACKET PB-0

SCALE: 1½"=1'-0"



DRAIN PIPE BRACKET PB-1

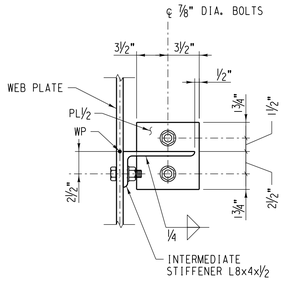
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INTERMEDIATE STIFFENER DETAIL

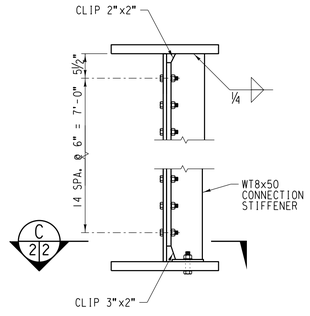
SCALE: ¾"=1'-0"

NOT AT CROSSFRAME



SECTION B 2 2

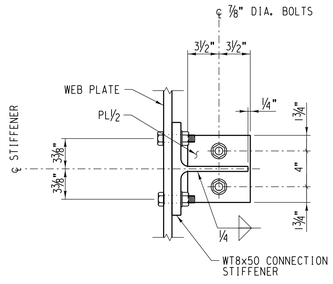
SCALE: 1½"=1'-0"



CONNECTION STIFFENER DETAIL

SCALE: ¾"=1'-0"

AT INTERMEDIATE CROSSFRAME



SECTION C 2 2

SCALE: 1½"=1'-0"

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL — STATUS — 04/20/2023 DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:

Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

REGISTERED PROFESSIONAL ENGINEER — NATHAN P. DICKERSON — No. C71974 — Exp. 12/31/23 — CIVIL — STATE OF CALIFORNIA

4-20-23

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY:	LAG/MJW
DRAWN/CHK BY:	MAM/LAG
UPRR ENGINEER:	ADS
SHT NO.:	F2 of F6

UNION PACIFIC RAILROAD

Office of Director Structures Design

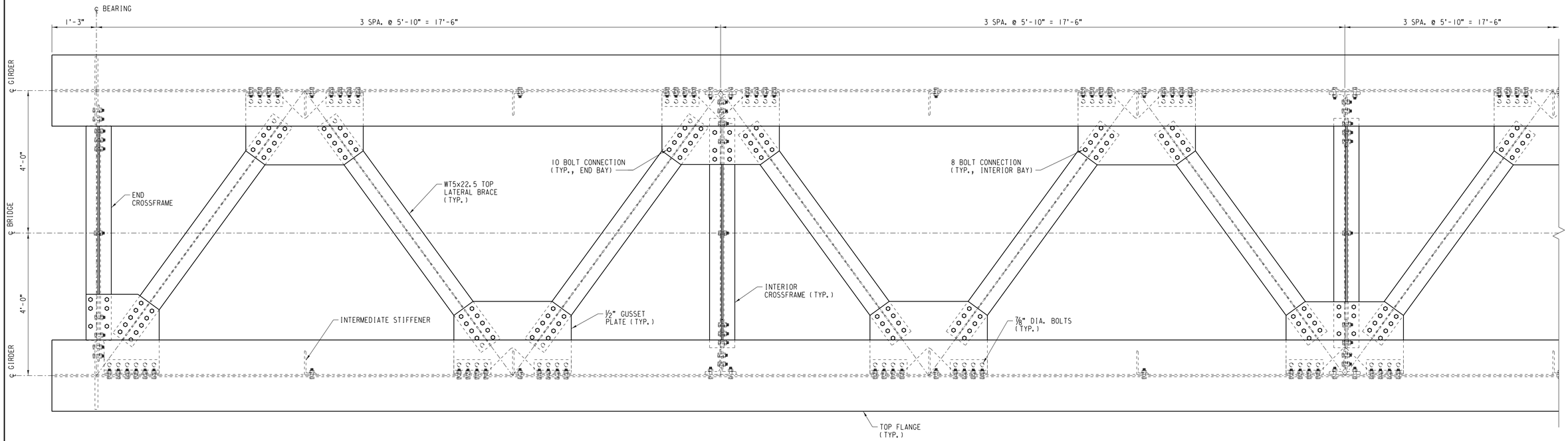
LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB

6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: 90' DPG SPAN TYPICAL DETAILS

FILE NAME: pw://HDR.US.Net:oval.01/41951/105503017/wrk30488_bca.dgn

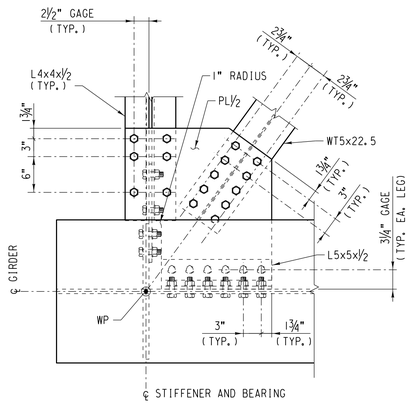
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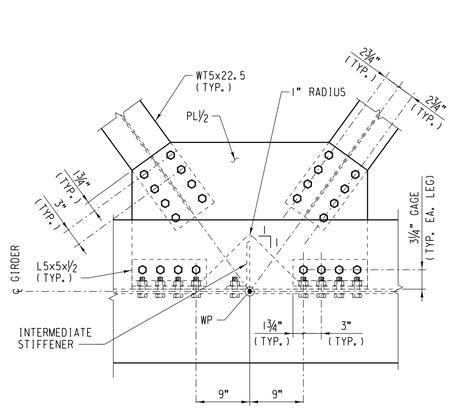
TYPICAL TOP LATERAL BRACING DETAIL

SCALE: ¾"=1'-0"

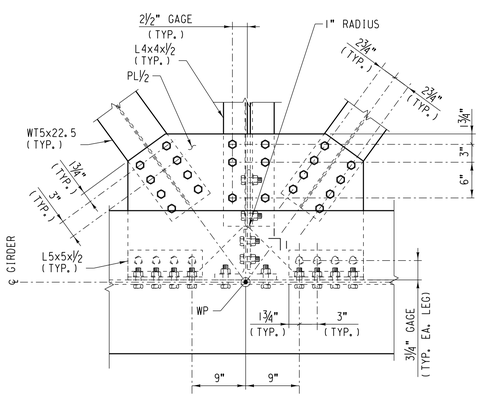
(CONCRETE DECK NOT SHOWN FOR CLARITY)



AT END CROSSFRAME



AT INTERMEDIATE STIFFENER



AT INTERIOR CROSSFRAME

TOP LATERAL BRACING CONNECTIONS

SCALE: 1"=1'-0"

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

NO.	DATE	REVISIONS
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COMPLETION STATUS:

FINAL — STATUS — 04/20/2023 DATE

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Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

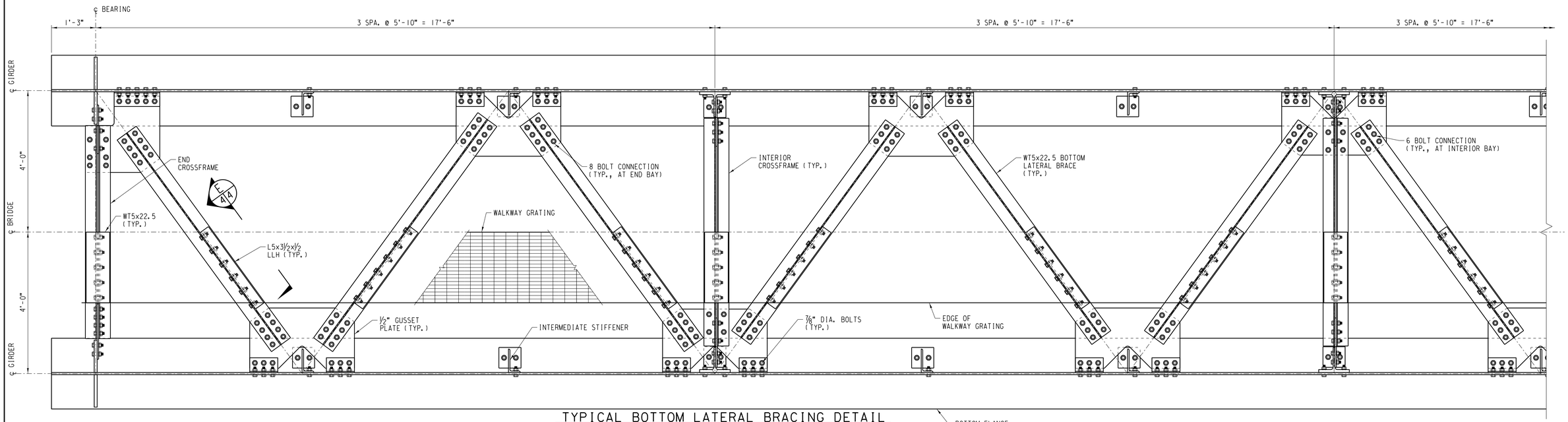
LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

UNION PACIFIC

DSN/CHK BY: LAG/MJW	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/LAG	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: F3 of F6	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: 90' DPG SPAN BRACING DETAILS (SHEET 1 OF 2)

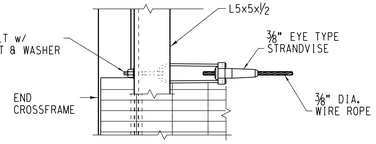
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PLOTTED: 4/21/2023 3:32:32 PM



TYPICAL BOTTOM LATERAL BRACING DETAIL

SCALE: ¾"=1'-0"

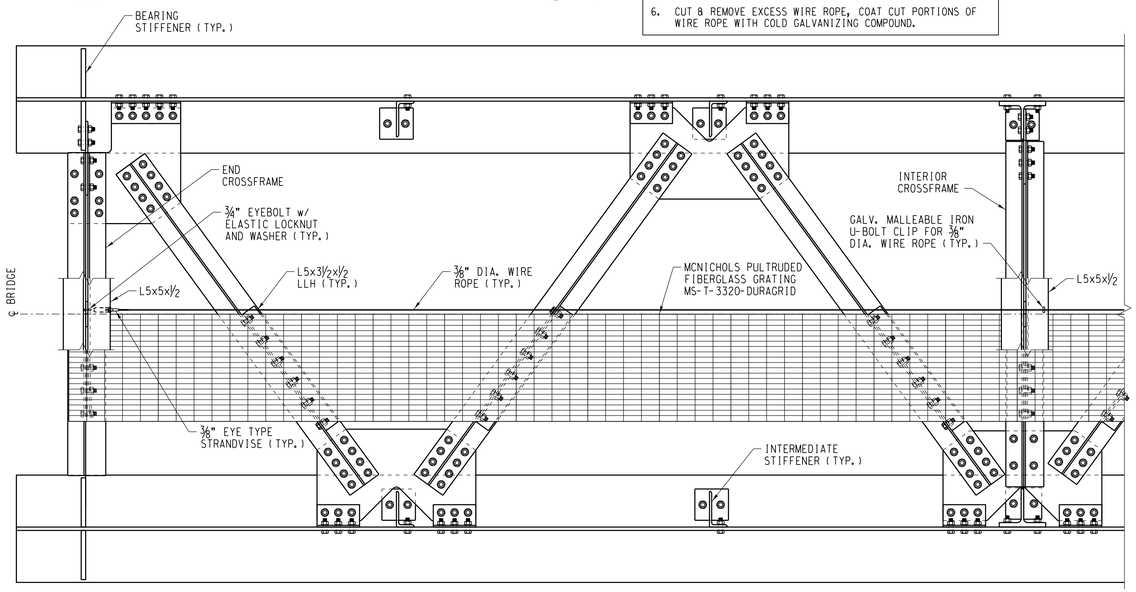


INSPECTION WALKWAY CABLE END CONNECTION

SCALE: 1½"=1'-0"

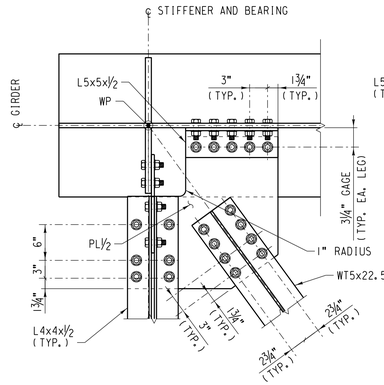
WIRE ROPE INSTALLATION INSTRUCTIONS:

1. THREAD WIRE ROPE THROUGH ALL CLIPS AND BARREL ANCHORS AND SEAT RETAINING WEDGES ON ONE END HANDRAIL POST.
2. STRETCH WIRE ROPE, HANG A MINIMUM OF 10 LB. ON CABLE BETWEEN TWO POSTS AND REMOVE ALL SAG TO A MAXIMUM OF 2 INCHES.
3. SEAT RETAINING WEDGES AT REMAINING END HANDRAIL POST.
4. REMOVE WEIGHTS.
5. TIGHTEN CLIPS AT INTERMEDIATE POSTS.
6. CUT & REMOVE EXCESS WIRE ROPE, COAT CUT PORTIONS OF WIRE ROPE WITH COLD GALVANIZING COMPOUND.

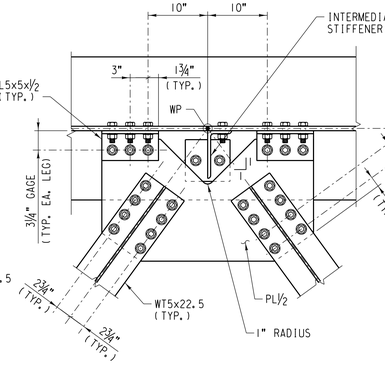


INSPECTION WALKWAY HANDRAIL DETAILS

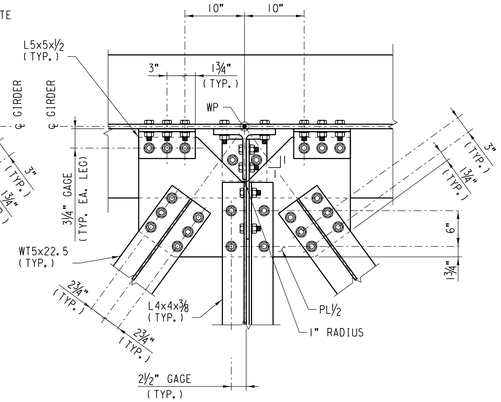
SCALE: ¾"=1'-0"



AT END CROSSFRAME



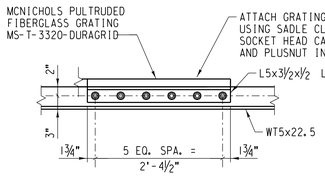
TYPICAL LATERAL BRACING CONNECTION



AT INTERIOR CROSSFRAME

BOTTOM LATERAL BRACING CONNECTIONS

SCALE: 1"=1'-0"



SECTION E

SCALE: ¾"=1'-0" (4|4)

NOTE:
1. WALKWAY GRATING AND WIRE ROPE HANDRAIL TO BE INSTALLED AFTER SPAN IS ASSEMBLED, GALVANIZED OR METALIZED, AND COATED.
2. LLV = LONG LEG VERTICAL

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

INSPECTION WALKWAY HANDRAIL MATERIAL SCHEDULE

REQ'D	UNIT	DESCRIPTION
12	EA.	⅜" EYE TYPE STRANDVISE CABLE GRIP CARTRIDGE (MACLEAN POWER PRODUCTS NO. 5102)
12	EA.	¾" DIA. EYEBOLT, 8" LONG SHANK w/ 1" I.D. EYE, PLAIN PATTERN GALV., DROP FORGED STEEL (A489)
24	EA.	GALV. MALLEABLE IRON U-BOLT w/ 2 WASHERS AND 2 ELASTIC LOCKNUTS (MIL-DTL-32258) ZINC PLATED, FOR ⅜" DIA. WIRE ROPE
600	LIN.FT.	⅜" NOMINAL DIAMETER WIRE ROPE, 7 WIRE, GALV. STEEL STRAND, SIEMENS MARTINS GRADE, A-COATING (6 @ 100')

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL — STATUS — 04/20/2023 DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

DSN/CHK BY:	LAG/MJW
DRAWN/CHK BY:	MAM/LAG
UPRR ENGINEER:	ADS
SHT NO.:	F4 of F6

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: 90' DPG SPAN BRACING DETAILS (SHEET 2 OF 2)

FILE NAME: pw://HDR_US_National.01:41951/10053017/wrk30488_bcda.dgn

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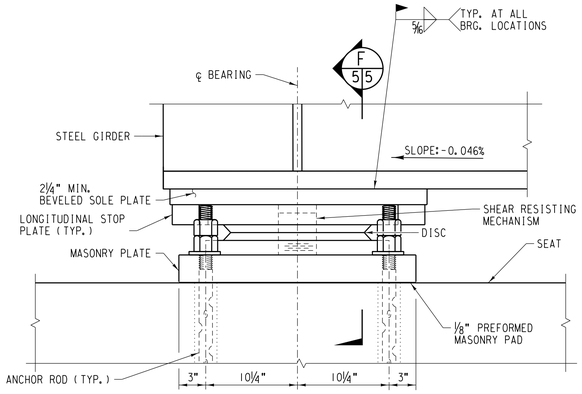
DISC BEARING NOTES

1. The bearing devices, including sole plates and masonry plates, shall be designed by the manufacturer in accordance with the Chapter 15, Part 5 of the current edition of the AREMA Manual for Railway Engineering.
2. The masonry plates shall be designed for an allowable bearing pressure of 0.3 f'c.
3. The sole plates shall be tapered to the longitudinal slope shown, and shall be sized for the movements shown in the Bearing Data Table. Additionally, the sole plates shall be 2" wider than the girder bottom flange.
4. The bearings shall be designed for the loads and movements shown in the Bearing Data Table occurring simultaneously.
5. Bearings shall be designed to accommodate a rotation of 0.02 radians.
6. All bearings' disc assembly shall be fully removable.
7. For guided expansion bearings, stainless steel surfaces shall extend a minimum of 1" each way beyond the specified movement range.
8. Total movements shown in the Bearing Data Table represent the combined movement range for bridge expansion and bridge contraction resulting from a change in temperature at a rate of 1 inch in 100 ft. Movement of expansion bearings is to be limited to 1" in the longitudinal direction for extreme events.
9. All bearings shall be marked prior to shipping. The marks shall include the bearing location on the bridge, and a direction arrow that points up-station. All marks shall be permanent and be visible after the bearing is installed. The marks shall be on the top plate of the bearing.
10. Non-stainless steel components of bearing assemblies shall be of ASTM A709 Grade 50 steel. Bearings shall be metalized and coated with a two part system after fabrication in accordance with the notes on sheet S6 and S7.
11. Anchor Bolts, coupling nuts and swedged anchor rods shall be galvanized in acordance with ASTM F2329.
12. The bearing height noted in these drawings represents the assumed total height of the bearing assembly plus the ⅛" preformed masonry pad. This height was used by the designer to establish the seat elevations and riser block heights as noted on pier detail sheets. The bearing height shall not be changed without written approval of the engineer.
13. In order to coordinate anchor bolt locations, pier cap concrete shall not be placed prior to receiving approved bearing shop drawings.
14. Anchor bolt layout shown in the details is based on the geometry shown in these plans. The anchor bolt layout was used in setting the geometry of the bent cap reinforcing which should allow the anchor bolts to be installed without conflict with the reinforcing. Any changes to the anchor bolt pattern may require a change to the reinforcing layout and precast riser blocks. Changes shall not be made without approval of the engineer.
15. Sliding type expansion bearings shall be comprised of PTFE and stainless steel conforming to the requirements of AREMA Manual for Railway Engineering Chapter 15, parts 5.5 and 5.1.
16. At bearing to girder welded connection, girder and bearing coatings shall be protected as much as practical. In the weld location remove coatings as required for welding. After welding is complete clean and prep surface to repair coatings per the project specifications.

BEARING DATA TABLE

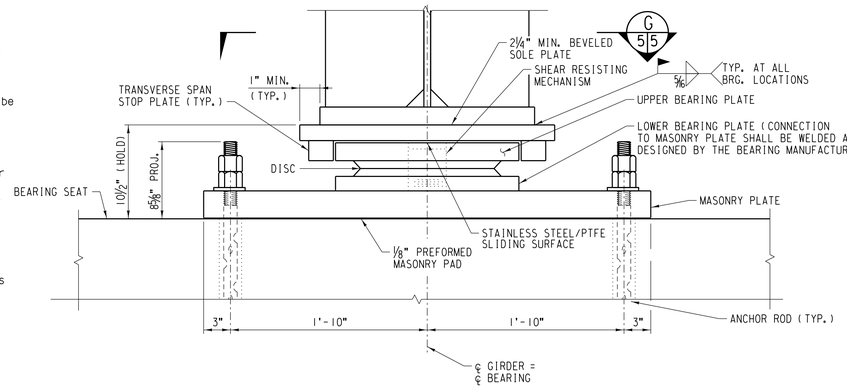
	BEARING TYPE	
	FIXED	EXPANSION
VERTICAL SERVICE (kip)	580	580
VERTICAL DEAD LOAD (kip)	205	205
LONGITUDINAL SERVICE (kip)	168	168
LONGITUDINAL EXTREME EVENT (kip)	338	338
TRANSVERSE SERVICE (kip)	15	15
TRANSVERSE EXTREME EVENT (kip)	41	41
LONGITUDINAL MOVEMENT (in)	-	2

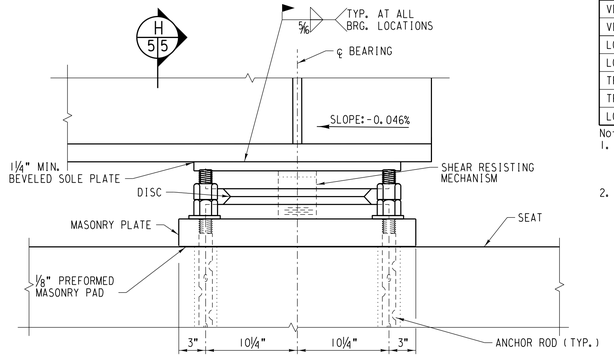
Note:
1. Extreme event design loads include a 1.5 reduction factor to account for 50% increase in allowable stress per AREMA.
2. Expansion bearing service longitudinal load is design load after 1" expansion is exceeded.



GUIDED EXPANSION BEARING - AT PIERS

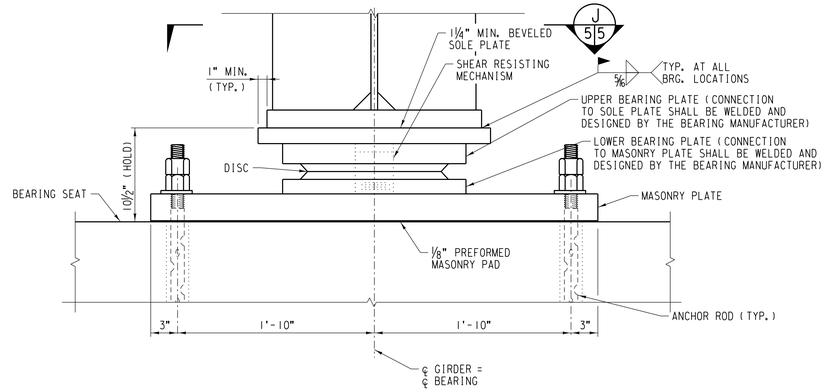
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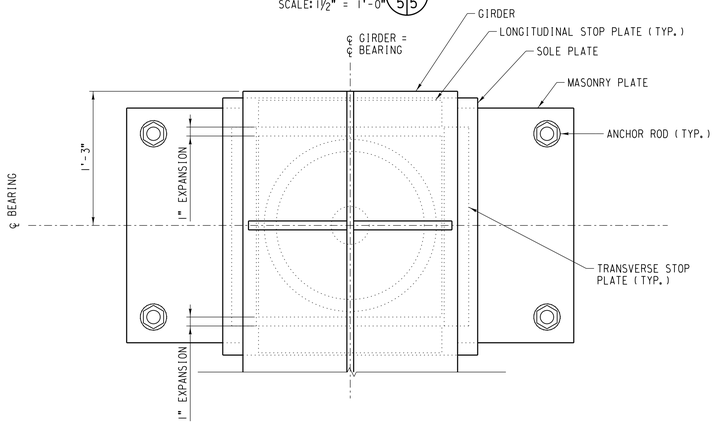


FIXED BEARING

SCALE: 1½"=1'-0"

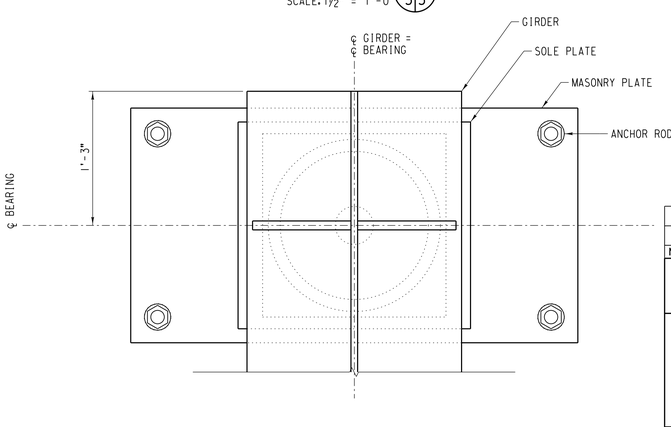


SECTION F 5|5
SCALE: 1½" = 1'-0"

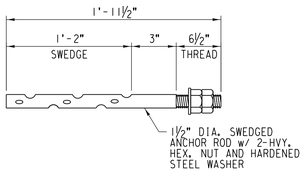


SECTION G 5|5
SCALE: 1½" = 1'-0"

SECTION H 5|5
SCALE: 1½" = 1'-0"



SECTION J 5|5
SCALE: 1½" = 1'-0"



ANCHOR ROD ASSEMBLY DETAIL

SCALE: NONE

NOTE:
FINAL BEARING GEOMETRY NEEDS TO BE COMPATIBLE WITH SUBSTRUCTURE SEAT AND SHEAR BLOCK GEOMETRY. SHEAR BLOCK AND ANCHOR ROAD LOCATION ADJUSTMENTS NEED TO BE FINALIZED PRIOR TO START OF CONSTRUCTION.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS
04/20/2023 — DATE

HDR

APPROVED FOR UNION PACIFIC RAILROAD BY:
Nathan P Dickerson — CONSULTANT ENGINEER
04/20/2023 — DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
105504	41969	123337

LATITUDE: 34.60891°N LONGITUDE: -120.63561°W

Nathan P Dickerson 4-20-23

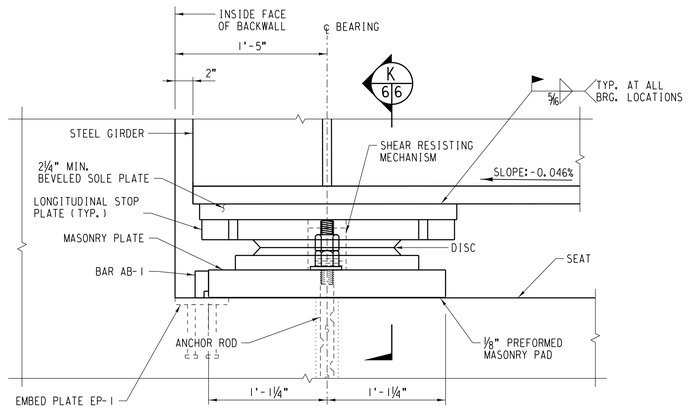
REGISTERED PROFESSIONAL ENGINEER — NATHAN P. DICKERSON — No. C71974 — Exp. 12/31/23 — CIVIL — STATE OF CALIFORNIA

UNION PACIFIC

DSN/CHK BY: LAG/MJW	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: MAM/LAG	Office of Director Structures Design
UPRR ENGINEER: ADS	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
SHT NO.: F5 of F6	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
	SHEET TITLE: 90' DPG SPAN BEARING DETAILS (SHEET 1 OF 2)

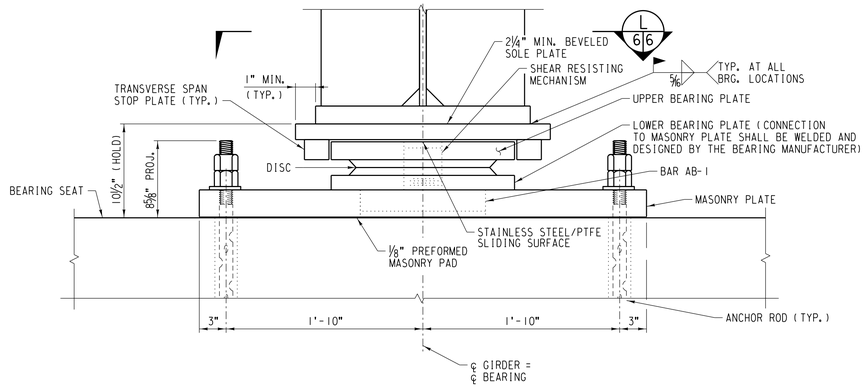
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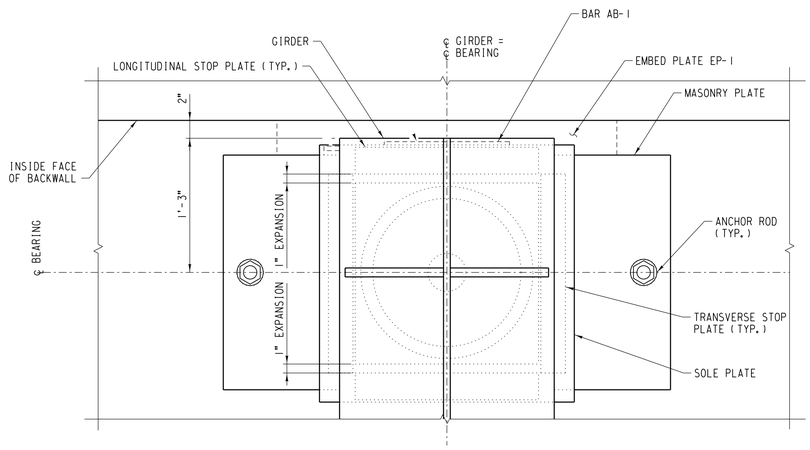
GUIDED EXPANSION BEARING - AT ABUTMENTS

SCALE: 1½"=1'-0"



SECTION K 6/6

SCALE: 1½" = 1'-0"



SECTION L 6/6

SCALE: 1½" = 1'-0"

NOTE:
AFTER FIELD WELDING, APPLY ZRC COLD GALVANIZING COMPOUND OR APPROVED ALTERNATE, FIELD APPLIED TO EACH OF THE WELDED INTERFACES AND COAT IN ACCORDANCE WITH FIELD APPLIED COATING REPAIR NOTES.

NOTE:
FINAL BEARING GEOMETRY NEEDS TO BE COMPATIBLE WITH SUBSTRUCTURE SEAT AND SHEAR BLOCK GEOMETRY. SHEAR BLOCK AND ANCHOR ROAD LOCATION ADJUSTMENTS NEED TO BE FINALIZED PRIOR TO START OF CONSTRUCTION.

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

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Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

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105504	41969	123337

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DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	F6 of F6

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB

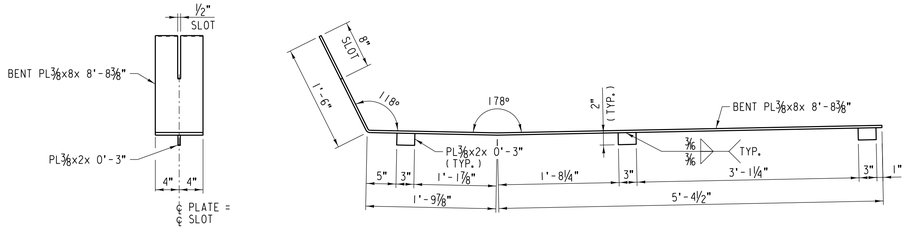
6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: 90' DPG SPAN BEARING DETAILS (SHEET 2 OF 2)

FILE NAME: pw://HDRJS.Net:ional.01/41951/D0030317/ent30488.bcca.dgn

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MISCELLANEOUS STEEL AND HANDRAIL SCHEDULE		
REQ'D	UNIT	DESCRIPTION
134	EA	COVER PLATE CP-1, GALVANIZED (PER DETAIL, THIS SHEET)
134	EA	CURB PLATE CB-1, GALVANIZED (PER DETAIL, THIS SHEET)
132	EA	UTILITY HANGER UH1-M, GALVANIZED AND COATED (PER DETAIL, THIS SHEET)
132	EA	HANDRAIL ASSEMBLY, GALVANIZED AND COATED (PER DETAIL, THIS SHEET)
4	EA	WALL HANDRAIL WH-1, GALVANIZED AND COATED (PER DETAIL, SHEET M2)
2	EA	WALL HANDRAIL WH-2L, GALVANIZED AND COATED (PER DETAIL, SHEET M2)
2	EA	WALL HANDRAIL WH-2R, GALVANIZED AND COATED (PER DETAIL, SHEET M2)
4	EA	WALL PLATE WP-2, GALVANIZED (PER DETAIL, SHEET M2)
8	EA.	MACHINE CHAIN, SIZE 2/0, ZINC FINISH, 4'-0" LONG w/ COLD SNAP LINK AT BOTH ENDS
16	EA.	½" DIA. EYEBOLT, 2" LONG SHANK WITH 1" I.D. EYE, PLAIN PATTERN GALVANIZED DROP FORGED STEEL (ASTM A489) WITH ZINC PLATED HEX NYLON INSERT LOCKNUT (ASTM A563) AND ZINC PLATED FLAT CIRCULAR WASHER (ASTM F436)

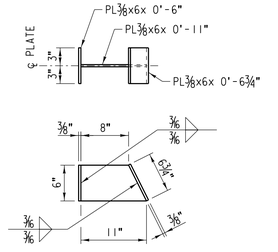


COVER PLATE CP-1

SCALE: 1"=1'-0"

EST. WT. = 90.7 LB. EACH

GALVANIZE AFTER FABRICATION

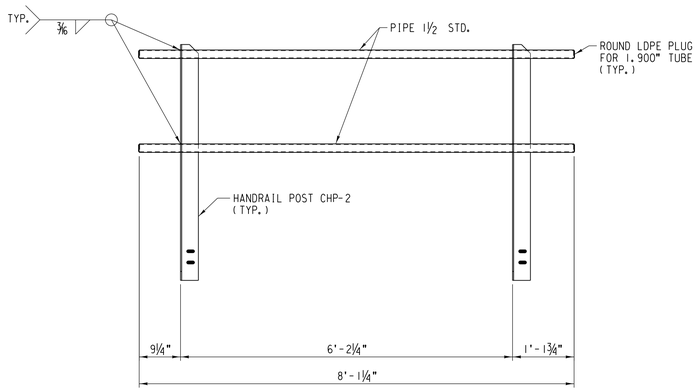


CURB PLATE CB-1

SCALE: 1"=1'-0"

EST. WT. = 14.2 LB. EACH

GALVANIZE AFTER FABRICATION

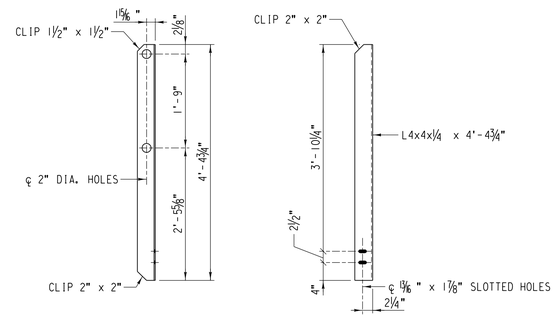


HANDRAIL ASSEMBLY

SCALE: ¾"=1'-0"

EST. WT. = 102 LB. EA.

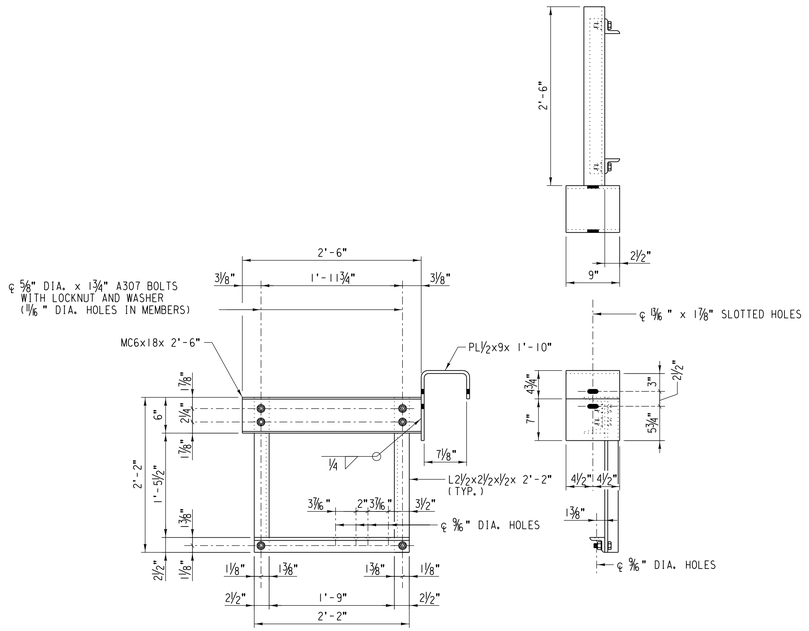
GALVANIZE AND COAT AFTER FABRICATION
SHIPS WITH 4-¾" DIA. x 9½" A307 GRADE A HVY. HEX BOLTS WITH HVY. HEX ELASTIC LOCKNUT (MIL-DTL-32259) AND FLAT CIRCULAR WASHER (F436)
ALL FASTENERS SHALL BE GALVANIZED



HANDRAIL POST CHP-2

SCALE: ¾"=1'-0"

EST. WT. = 29.1 LB. EA.



UTILITY HANGER UH1-M

SCALE: 1"=1'-0"

EST. WT. = 124 LB. EA.

SHIPS WITH TWO ¾" DIA. X 9½" A307 BOLTS WITH LOCKNUT, WASHER AND TWO GALVANIZED STEEL U-BOLT, ½"-16 THREAD SIZE, 2½" WITH ZINC PLATED HEX NYLON INSERT LOCKNUTS (ASTM A563) AND ZINC PLATED FLAT CIRCULAR WASHERS (ASTM F436)
GLAVANIZE AND COAT AFTER FABRICATION
ALL FASTENERS SHALL BE GALVANIZED

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER
NATHAN P. DICKERSON
No. C71974
Exp. 12/31/23
CIVIL
STATE OF CALIFORNIA

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Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

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105504	41969	123337

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DSN/CHK BY:	MJW/LAG
DRAWN/CHK BY:	MAM/MJW
UPRR ENGINEER:	ADS
SHT NO.:	M1 of M2

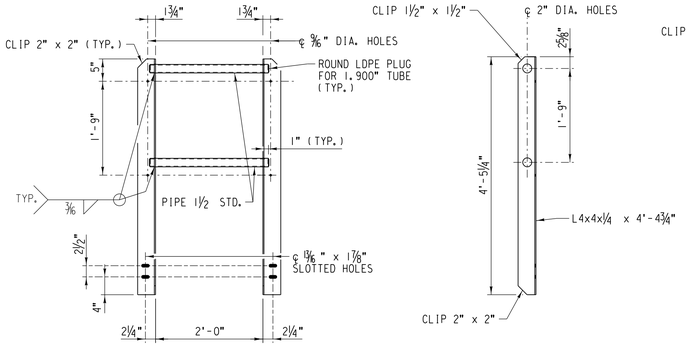
UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT

SHEET TITLE: MISCELLANEOUS STEEL DETAILS (SHEET 1 OF 2)

FILE NAME: pw://HDR_US_National_DL/41951/105263017/ark30488_bca.dgn

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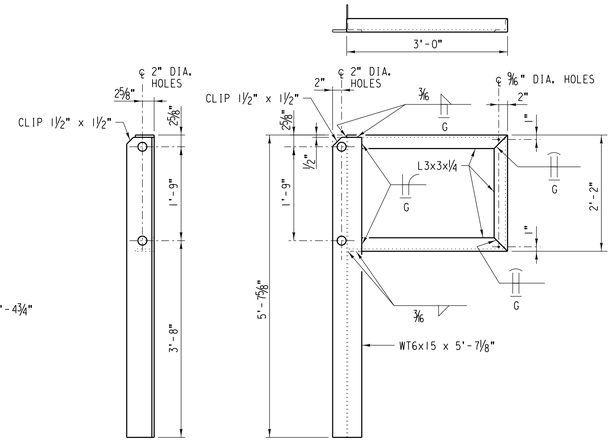


WALL HANDRAIL WH-1

SCALE: ¾"=1'-0"

EST. WT. = 70.2 LB. EA.

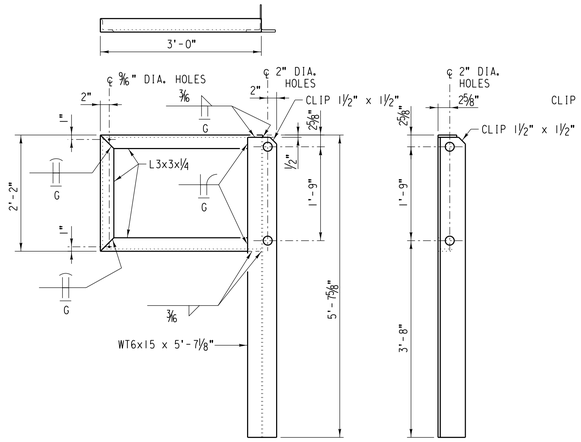
GALVANIZE AND COAT AFTER FABRICATION
SHIPS WITH 4-¾" DIA. x 2'-5" ALL THREAD ROD WITH 4-HVY.
HEX ELASTIC LOCKNUT (MIL-DTL-32259) AND 8-FLAT CIRCULAR WASHER (F436)
ALL FASTENERS SHALL BE GALVANIZED



WALL HANDRAIL POST WP-2R

SCALE: ¾"=1'-0"

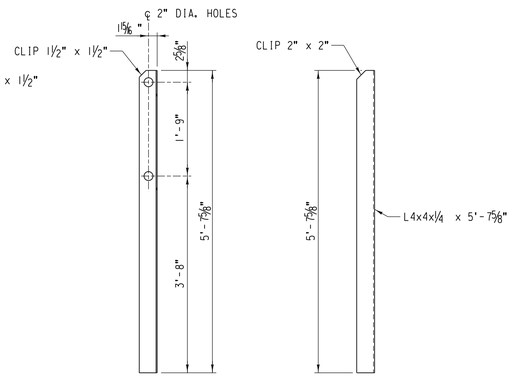
EST. WT. = 126 LB. EACH



WALL HANDRAIL POST WP-2L

SCALE: ¾"=1'-0"

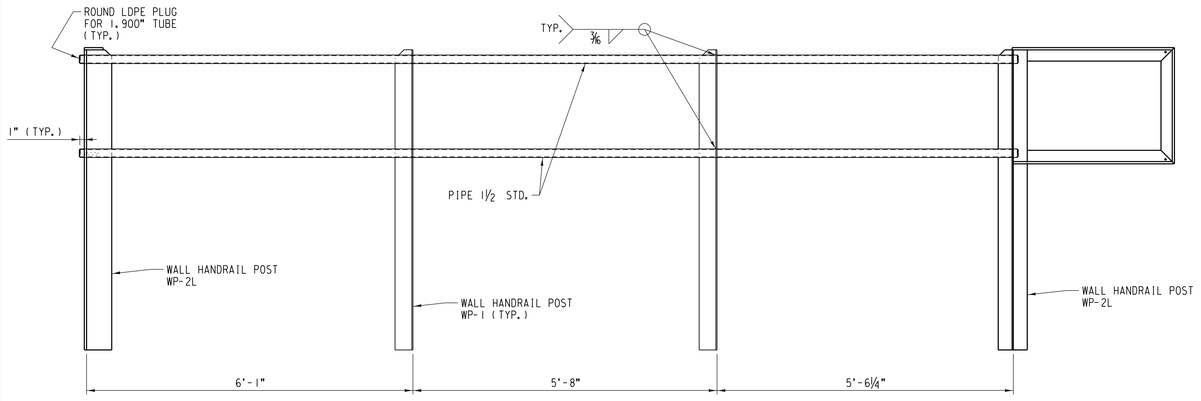
EST. WT. = 126 LB. EACH



HANDRAIL POST WP-1

SCALE: ¾"=1'-0"

EST. WT. = 37.2 LB. EA.

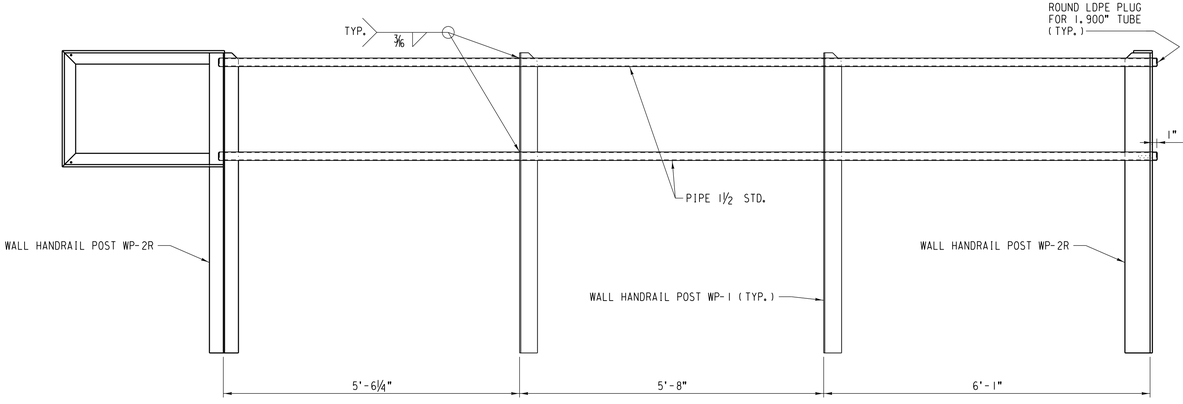


WALL HANDRAIL WH-2L

SCALE: ¾"=1'-0"

EST. WT. = 422 LB. EACH

GALVANIZE AND COAT AFTER FABRICATION

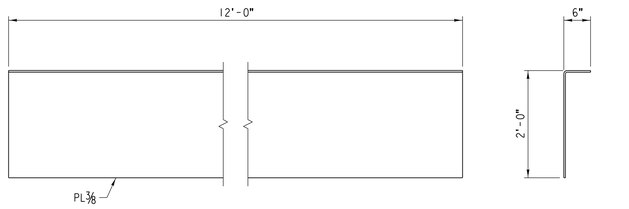


WALL HANDRAIL WH-2R

SCALE: ¾"=1'-0"

EST. WT. = 422 LB. EACH

GALVANIZE AND COAT AFTER FABRICATION



ELEVATION

SECTION

WALL PLATE WP-1

SCALE: ¾"=1'-0"

EST. WT. = 460 LB. EACH
GALVANIZE AFTER FABRICATION

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

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Nathan P. Dickerson — CONSULTANT ENGINEER — 04/20/2023 DATE

Nathan P. Dickerson 4-20-23

REGISTERED PROFESSIONAL ENGINEER — NATHAN P. DICKERSON — No. C71974 — Exp. 12/31/23 — CIVIL — STATE OF CALIFORNIA

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UNION PACIFIC

DSN/CHK BY: MJW/LAG	**UNION PACIFIC RAILROAD** — Office of Director Structures Design
DRAWN/CHK BY: MAM/MJW	LOCATION & DESCRIPTION: BRIDGE 304.88, SANTA BARBARA SUB
UPRR ENGINEER: ADS	6 SPANS - 90' STEEL DPG-BD IN-LINE REPLACEMENT
SHT NO.: M2 of M2	SHEET TITLE: MISCELLANEOUS STEEL DETAILS (SHEET 2 OF 2)

FILE NAME: pw:/HDR_US_National.01/41295/11205307/mk304BB_bca.dgn

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APPENDIX L. CONCEPTUAL RESTORATION PLAN (ALTHOUSE AND MEADE, MARCH 2022)

Conceptual Habitat Mitigation Plan

for

Union Pacific Railroad Milepost 304.88
La Cañada Honda Bridge Replacement Project
Santa Barbara Subdivision



Honda Bridge over Honda Creek, Santa Barbara County, California

Prepared for

Union Pacific Railroad Company
Steve Cheney, Sr. Manager of Structure Designs
1400 Douglas Street, Stop 0901
Omaha, NE 68179-0901

by

ALTHOUSE AND MEADE, INC.
BIOLOGICAL AND ENVIRONMENTAL SERVICES
1602 Spring Street
Paso Robles, CA 93446
(805) 237-9626

March 2022

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2.2 Project Description 3

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Cover Page: Honda Bridge at the proposed Project site. Photo taken on November 2, 2021.

1 INTRODUCTION

Union Pacific Railroad (UPRR) proposes to replace the existing railroad bridge over Honda Creek with a new bridge (Project) that would be consistent with Federal Railroad Administration (FRA) standards and current UPRR safety standards. Construction of the new bridge would result in impacts to upland and riparian habitats on Vandenberg Space Force Base (VSFB) including impacts to waters of the United States (WOTUS) and Waters of the State (WOTS) within Honda Creek.

To mitigate impacts to jurisdictional waters, UPRR proposes to restore temporary impacts and enhance habitat within the Honda Creek watershed using appropriate mitigation ratios. This Conceptual Mitigation Plan (Plan) provides a conceptual restoration and revegetation design for impacted wetlands and waters in Honda Creek and upland habitats located elsewhere in the Project Action Area. Implementation of restoration would begin upon completion of the new bridge, expected in fall of 2024.

2 PROJECT DESCRIPTION

2.1 Project Location

Honda Bridge is located within VSFB, along the northwestern coast of Santa Barbara County, approximately 10 miles southwest of the City of Lompoc, California. The existing bridge crosses Honda Canyon and Honda Creek at UPRR Mile Post (MP) 304.88. Habitat restoration would occur between approximately 15 feet above mean sea level (amsl) within Honda Creek up to 200 feet amsl on slopes adjacent to the creek and on bluffs north and south of Honda Canyon.

2.2 Project Description

The Project is in a 30.2-acre Action Area that consists of bridge replacement, construction and temporary staging, and fiber optic relocation and replacement. The Project also includes mitigation for temporary and permanent impacts to upland habitats, CRLF habitat, and wetland and non-wetland waters associated with Honda Creek (Figure 1).

UPRR proposes to remove the existing 541-foot Honda Bridge deck and steel towers to construct a new bridge that would be approximately 581 feet in length. The new bridge deck would be supported by 5 new cast-in-place concrete columns. The steel piles and casing would be covered by cast-in-place concrete pile caps (each approximately 0.01-acre). To avoid unnecessary biological impacts to Honda Creek and floodplain, the existing Honda Bridge pedestals at Bents 6, 7, 8, and 9 would remain, and may continue to provide scour pools and aquatic habitat. Existing Abutment 1, and pedestals of Bents 2 to 5, 10 to 13, and Abutment 14 would remain in upland habitat.

Project construction activities would require access improvements and temporary staging areas on UPRR and VSFB property. Up to 17.3 acres of construction and staging activities directly related to bridge replacement would occur within the Action Area. Additional Project activities within the Action Area would consist of up to 2.6 acres for fiber optic relocation and replacement and an additional 10.3 acres for potential watershed enhancement via nonnative plant removal and native revegetation.

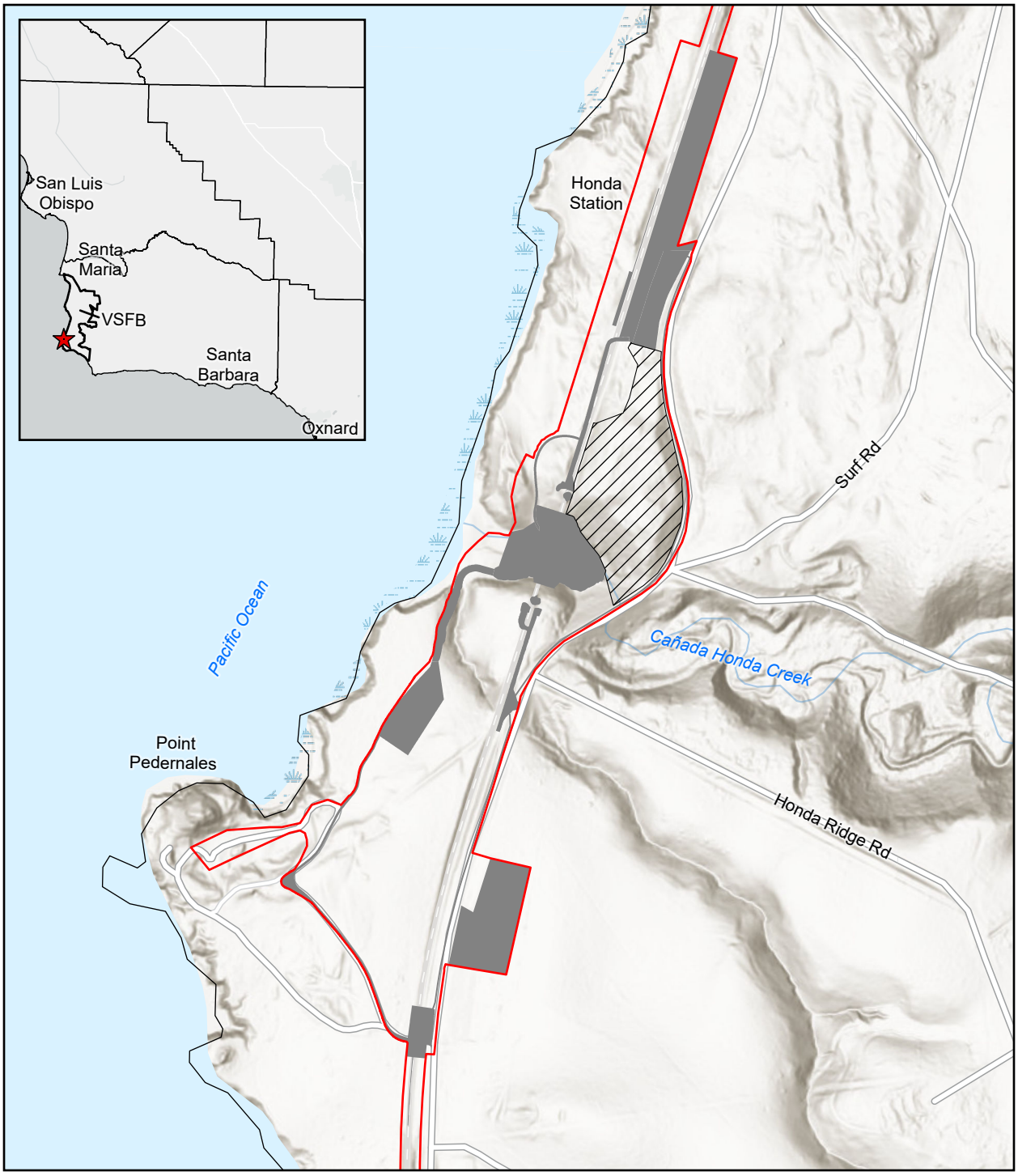
Impacts to WOTUS and WOTS would occur during construction of access routes and work platforms at the base of Honda Bridge. Temporary causeway and work platforms would be constructed to access the base of the bridge and proposed Piers 3, 4, 5, and 6. A sheet pile seawall would extend from the lower access road to protect the construction causeway from Honda Beach wave action and fluctuating tides. To protect the construction site from Honda Creek, the temporary fill slope along the eastern edge would be hardened with rip rap, approximately 8 feet high. To protect the construction work area from stormwater, six 72-inch diameter pipes would convey stormwater under the construction work area. The temporary pipes would be approximately 190 feet long and would extend to an opening in the sheet pile seawall. A temporary water diversion structure made up of sheet pile (approximately 25 feet long) would be placed downstream from the Coast Road culverts to divert stormwater to the six 72-inch diameter temporary pipes. The sheet pile diversion structure would redirect stormwater but would allow normal flow via a hole cut in the sheet pile. The Project would utilize VSFB's culvert repair project access road and platform to drive the sheet pile diversion structure.

Additional Project activities would occur north and south of Honda Canyon and include excavation of fill material from borrow sites, road improvements, and temporary and permanent fiber optic relocation.

Project mitigation actions include construction of 3 to 4 frog pools, approximately 2 to 3 feet deep, each about 400 to 550 square feet. Pools would be located southwest of the Coast Road culvert outfalls.

Weedy trees may also be removed from the canyon by root crown and/or cut stump herbicide application (not by pulling or digging). All disturbed upland and wetland areas are proposed to be restored and enhanced by reducing the percent cover of weedy vegetation compared to the baseline condition.

Figure 1. Project Overview



Legend

- Honda Bridge Replacement Location
- Study Area
- Action Area
- Potential Habitat Restoration Area

N

0 500 1,000 Feet

Union Pacific Railroad - La Cañada Honda Bridge Replacement
Map Center: 120.63657°W 34.6076°N
Santa Barbara County

Basemap: World Hillshade and Terrain Base

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BIOLOGICAL AND ENVIRONMENTAL SERVICES

Map Updated:
March 23, 2022 11:18 AM by SAF

3 PROJECT IMPACTS

3.1 Impacts to Jurisdictional Wetlands and Waters

Construction of temporary causeways and work platforms within Honda Creek and associated habitats would temporarily impact up to 1.58-acre of WOTUS and WOTS and up to 0.42-acre of WOTS. Permanent impacts from new bridge pile caps would total 0.03-acre of WOTUS and WOTS. Jurisdictional impacts are summarized in Table 1 and Figure 2.

TABLE 1. SUMMARY OF IMPACTS TO JURISDICTIONAL WETLANDS AND WATERS

Jurisdictional Waters/Wetlands	Impacts (acres)		Mitigation Required*		Mitigation Area (acres)	
	Temp	Perm	Ratio (Perm. Imp.)	Perm. Mitigation Req'd	Restoration & Enhancement of Temp Impact Areas	Creation of CRLF Pools
Federal & State Non-Wetland Waters	0.66	0.02	1.25:1	0.025	0.66	0.025 *(1089 sf))*
Federal & State Wetland	0.92	0.01	1.25:1	0.0125	0.92	0.0125 *(545 sf)*
State-Only Wetland	0.42	0	n/a	0	0.42	0
TOTAL	**2.00**	**0.03**		**0.038**	**2.00**	**0.038** *(1634 sf)*

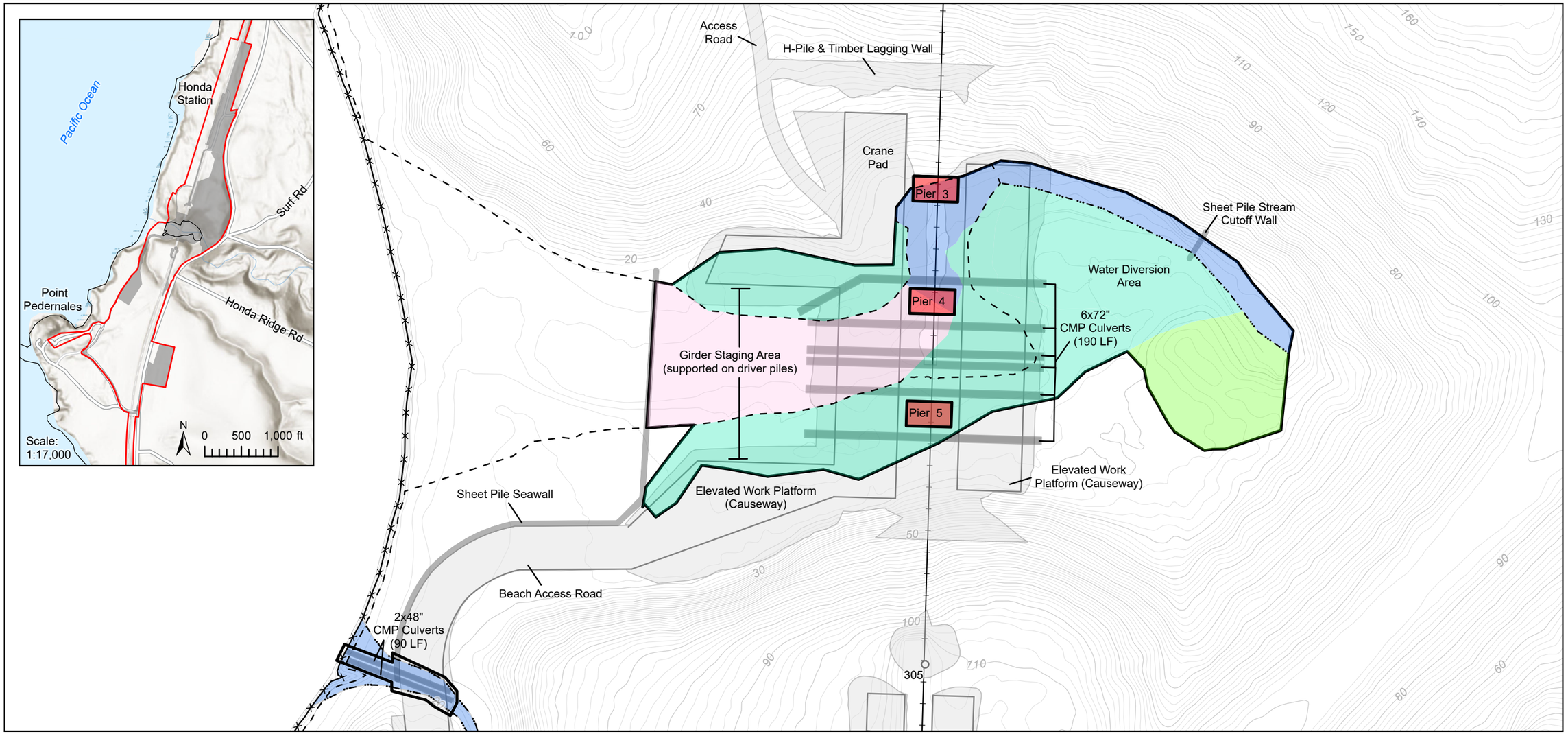
3.2 Impacts to Upland Habitats

Project activities may temporarily affect up to 4.8 acres of upland habitat including central coastal scrub, central coastal scrub/iceplant, and iceplant (Table 2). Some impacted central coastal scrub habitat has been historically disturbed and contains high proportions of non-native vegetation such as iceplant (*Carpobrotus* spp.) and acacia (*Acacia longifolia*). Historic dune habitats north of Honda Canyon have been heavily invaded by iceplant which may approach 100 percent cover. Areas that are dominated by nonnative plants would be restored to conditions similar to historic vegetation and after consultation with VSFB natural resource managers.

TABLE 2. SUMMARY OF IMPACTS TO UPLAND HABITAT

Habitat Type	Work Areas in Action Area	Impacts (Ac.)
Central Coastal Scrub	Abutment 7 & Access Road, Southern Borrow Source, Lower Causeway, Hand Holes, Fiber Optic Temporary Re-route	1.2
Central Coastal Scrub/Iceplant	Beach Access Road, Southern Borrow Source, Lower Causeway, Hand Holes, Fiber Optic Temporary Re-route	2.5
Iceplant	North Abutment 1, Crane Pad, and Pier 2 Access Roads	1.1
TOTAL		**4.8**

Figure 2. Jurisdictional Impacts



Legend

- Permanent Jurisdictional Impacts (0.03 acre)
- Temporary Jurisdictional Impacts (2.00 acres)*
- Construction Footprint
- Project Components
- Estuary (0.42 acre)
- Riparian Zone (0.23 acre)
- Wetland (1.11 acres)
- Stream Channel (0.27 acre)
- MHW
- HTL
- OHWM
- Railroad Track
- Milepost

N

0 50 100 Feet

**At this time, all estuarine, riparian, wetland and stream channel resources within the work area are considered impacted even though it will not all be temporarily filled. Additionally, VSFB proposes a temporary route to be impacted/filled for culvert repair/access which will be restored after Honda bridge construction is complete.*

Union Pacific Railroad -
La Cañada Honda Bridge Replacement
Map Center: 120.6363°W 34.6081°N
Santa Barbara County

Contour Interval: 2-foot

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Map Updated:
February 10, 2022 11:09 AM by ZAR

4 PROPOSED RESTORATION AND MITIGATION

4.1 Jurisdictional Wetlands and Waters

Mitigation requirements would be met through a mix of restoration and enhancement of wetlands and waters within Honda Creek and watershed enhancement through removal of nonnative vegetation and restoration of native species (Figure 3). UPRR would return all impacted habitats to their pre-Project conditions or better: all temporary fill would be removed, the creek bed would be returned to pre-Project contours, and habitats would be re-vegetated. UPRR would consult with VSFB biologists in developing a final Compensatory Mitigation and Monitoring Plan (CMMP) to restore the Honda Creek channel, flood plain contours, and associated vegetation. The final plan would incorporate Honda Creek flow models and potential tidal and storm wave/surge data to create resilient habitat that would survive a 25-year flood event.

Habitat within Honda Creek may be enhanced by the addition of rock weirs to create pool habitats between Coast Road and Honda Bridge. Staggered rock barriers would allow water to flow freely while creating a mix of shallow and deep water beneficial to a variety of organisms (WDFW 2004). UPRR proposes leaving the existing concrete bridge pedestals in place at Bents 6, 7, 8, and 9 as they have been present for 120 years and create scour pools that provide habitat for all life stages of CRLF as well as other aquatic organisms such as Baja California tree frogs (*Pseudacris hypochondriaca*) and two-striped garter snakes (*Thamnophis hammondii*).

Native species would be replanted in restored habitats once temporary causeways are removed and creek bed recontouring are complete. Revegetation may use a mix of salvaged plants, live stakes, container stock grown from local material, and distribution of appropriate seed mixes to restore and enhance riparian habitat (Table 3.). To prevent the transfer of nonnative plants and potential CRLF pathogens, impacted wetland species such as *Juncus textilis*, *Frankenia salina, Jaumea carnosa, Salix lasiolepis* and other species may be salvaged from Honda Creek prior to construction and maintained on site until restoration activities commence, rather than imported from other areas. Additional species may be replanted using seeds collected from within the Honda Creek watershed, when practicable. If onsite vegetation and seed is insufficient, off-site seed may be obtained from coastal Santa Barbara County (see Section 4.2).

TABLE 3. COASTAL BRACKISH AND FRESHWATER MARSH PLANTING MIXES

Salt / Brackish Marsh Mix	Freshwater Marsh Mix
Bolboschoenus maritimus	*Artemisia douglasiana*
Distichlis spicata	*Baccharis glutinosa*
Frankenia salina	*Juncus textilis*
Jaumea carnosa	*Salix lasiolepis*
Schoenoplectus americanus	*Schoenoplectus acutus*
Schoenoplectus pungens	*Typha latifolia*

During mitigation implementation, soil stabilization methods may include willow pole plantings, seed mixes, hydromulch, biodegradable fiber wattles, granular filter, grade-control structures, and rock riprap. Hydromulch would be composed of 2,000 lbs/acre mulch, 60 lbs/acre guar gum, and 60 lbs/acre AM 120 mycorrhizal inoculums (or equivalent soil inoculant). Planting and hydroseed application would occur in the fall, between October 1 and December 21 (preferably between October 1 and November 15) to minimize supplemental water demands and optimize growth during relatively warm days in the fall. All restoration activities would be overseen by the Project Biologist to verify that planting locations are appropriate and established horticultural practices are followed.

4.2 Frog Pool Creation

A string of three or four pools approximately 3 to 4 feet deep would be created on what is currently floodplain habitat southwest of the culvert outfalls. The three pools, approximately 20 feet in diameter would total 1100 square feet of inundated area in a normal year, surrounded by 3-factor wetland habitat (circumference about 2 to 3 feet wide; 544 square feet) with adjacent state wetland habitat suitable to provide frog cover from predators.

Frog pools would be excavated during the dry season (late summer/early fall) and the surrounding habitat will be weeded immediately. Wetland plants salvaged from the impact area during construction, plus local wetland seeds will be placed around the perimeter after soil is sufficiently moist from fall rains.

4.3 Upland Habitats

Impacted upland habitats would be returned to their pre-Project conditions or better. All borrow sites would be recontoured, all temporary fill removed, and disturbed habitats would be revegetated with salvaged topsoil or appropriate seed mixes (Table 4). South of Honda Canyon, central coastal scrub would be stabilized using a combination of hydromulch, biodegradable fiber wattles, and seeding with native species (Table 4). North of Honda Canyon, in potential beach layia habitat, topsoil would be salvaged prior to Project disturbance. Potential habitat will include areas near known occurrences that have exposed topsoil and/or native annuals. Topsoil will not be salvaged from disturbed areas that are infested with iceplant or other nonnative plants. Topsoil may be salvaged using hand tools or construction equipment and stored until restoration begins. Any disturbance to beach layia habitat would be mitigated at a 2:1 ratio and mitigation areas monitored and treated for nonnative species for 5 years. Treatment may include hand-weeding or herbicide application. Impacted upland areas dominated by nonnative vegetation such as *Carpobrotus* iceplant would be restored to a condition beneficial to sensitive plant and animal taxa. Table 4 includes seed mixes that will be used in Central Coastal Scrub restoration south of Honda Canyon and mixes in sandy iceplant-dominated areas north of the canyon. UPRR would consult with VSFB biologists in developing final restoration plans for such habitats.

If off-site seed is required, seed mixes may be obtained from S&S Seeds, Carpinteria, CA: Phone (805) 684-0436, Email: info@ssseeds.com. Seeds would be ordered as soon as the Project starts to ensure that they are available once restoration begins.

TABLE 4. CENTRAL COASTAL SCRUB AND ICEPLANT MIXES

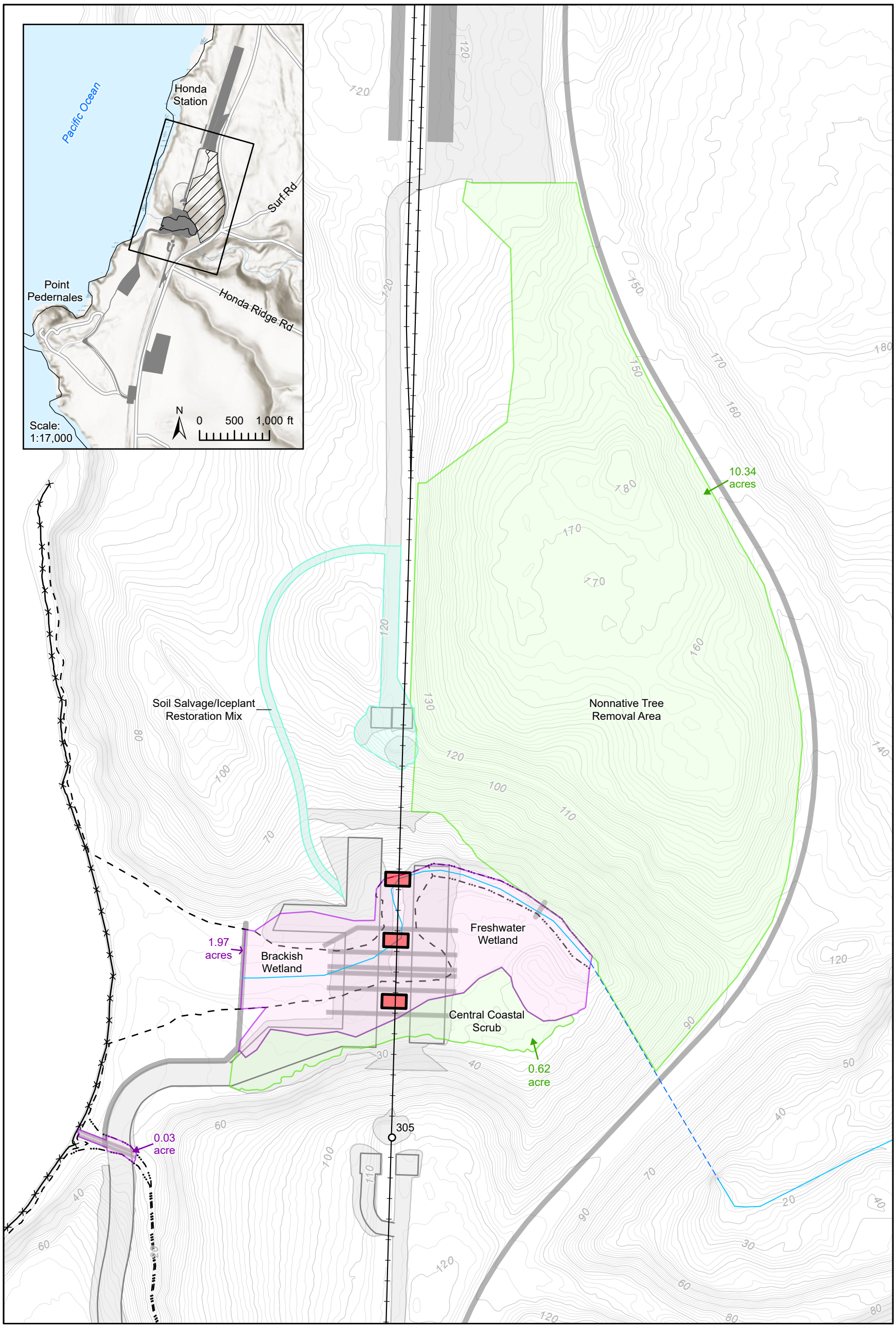
Central Coastal Scrub Mix	Iceplant Mix
Artemisia californica	*Artemisia californica*
Baccharis pilularis	*Baccharis pilularis*
Eriogonum parvifolium	*Eriogonum parvifolium*
Isocoma menziesii	*Leptosyne gigantea*
Leptosyne gigantea	*Lupinus chamissonis*
Salvia mellifera	*Lupinus arboreus*

Planting and hydroseed application would occur in the fall, between October 1 and December 21 (preferably between October 1 and November 15) to minimize supplemental water demands and optimize growth during relatively warm days in the fall. All restoration activities would be overseen by the Project Biologist to verify that planting locations are appropriate and established horticultural practices are followed.

4.4 Non-native Tree Mitigation Area

If mitigation ratios cannot be satisfied within the Honda Creek canyon floodplain for the wetland impacts, along with enhancement and restoration of disturbed upland habitats, UPRR proposes meeting mitigation requirements by watershed enhancement via removal of non-native long-leaved acacia (*Acacia longifolia*) from the north side of Honda Canyon. Trees would be cut just above ground level and stumps treated with an appropriate herbicide by a qualified applicator. The slope would then be stabilized using hydromulch and biodegradable fiber wattles, if needed, and seeded with native central coastal scrub species (Table 3) for long term revegetation and stabilization. All work would be by hand and on foot and no equipment or subsurface disturbance would occur within the acacia mitigation area.

Figure 3. Mitigation Proposed



Union Pacific Railroad -
La Cañada Honda Bridge Replacement
Map Center: 120.63529°W 34.60919°N
Santa Barbara County

Contour Interval: 2-foot

ALTHOUSE AND MEADE, INC.
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Map Updated:
March 31, 2022 03:12 PM by SAF

5 MONITORING PLAN AND PERFORMANCE CRITERIA

5.1 CRLF Monitoring Plan

Honda Creek would be surveyed for CRLF using the United States Fish and Wildlife Service (USFWS) 2005 Revised Guidance on Site Assessments and Field Surveys for the CRLF and modified as described below. Surveys would be conducted during the Project and for 5 years after commencement of restoration or until Performance Standards are met. Surveys would be conducted by USFWS-approved biologists experienced with identifying all life stages of CRLF. Three visual surveys per year would be conducted and each survey would have a daytime and nighttime component. Survey areas would include pre-existing habitat within Honda Creek, temporary habitat created by Project activities, and restored habitats after Project completion.

Data collected would include the total number of CRLF egg masses, tadpoles, metamorphs, juveniles, and adults observed during each sampling session. The maximum number seen for any sampling session (day or night) per year, which represents the minimum number known to be present, would be used for comparison over time. Data regarding the type and quality of each area sampled (areas and final protocols to be determined in final restoration plans) would be recorded as per current CRLF survey recommendations by the USFWS.

5.2 Vegetation Monitoring Plan

Prior to commencement of the Project, quantitative assessments within impacted habitats would establish baseline vegetative cover and species composition. Collected data would be used in designing final restoration plans and performance standards. Once restoration starts, restored areas would be monitored during the first three years to determine weeding and watering needs. He Project Biologist would monitor work progress and consult with restoration workers to ensure plants are properly installed, irrigated, and maintained, and that problems are quickly addressed. During year one a Project Biologist would provide worker environmental training and monitor restoration work. Follow-up monitoring visits would be made on a quarterly schedule to monitor weed cover and other problems that may require adaptive management.

Once per year for 5 years, a biologist would perform quantitative monitoring in the spring or early summer to assess restoration sites. At the beginning of the restoration effort, plots would be selected within each restoration area and would be sampled annually. Monitoring Year 1 would begin on the day planting activities are completed.

Quantitative monitoring would include the following data for each survey plot:

a. % relative cover for each species
b. % relative cover for native species
c. % relative cover for non-native species
d. % dead cover
e. % substrate cover (mulch, soil, plant litter, etc.)
f. general health and stature of plants
g. signs of reproduction
h. species richness per plot

In addition to quantitative survey plots, the nonnative tree removal area would be monitored using drone imagery prior to Project initiation and the acacia extent quantified. New imagery would be acquired annually to track cover changes during the 5-year monitoring period. Additional drone imagery may be used to qualitatively assess other Project restoration areas.

Photo monitoring points would be established at each sampling location and at points that capture representative views of restoration sites. Results of quantitative monitoring would be used to judge restoration progress and photographs would show qualitative change. Maps with photo points, weed treatment areas, and locations for remediation would be prepared each year and included in annual reports.

5.3 CRLF Performance Targets

Baseline CRLF numbers and habitat usage as determined by pre-Project surveys would be used to determine successful recolonization of restored areas after Project completion. Performance targets would be considered met if CRLF are observed in numbers comparable to pre-Project levels and are observed utilizing the pre-Project habitat extent.

5.4 Vegetation Restoration Performance Targets

Vegetation cover and species richness parameters as determined by pre-Project surveys would be used to measure restoration success. Performance standards are anticipated to be met by year three (Table 4) and would be monitored through year five (anticipated to be 2029).

TABLE 5. PERFORMANCE STANDARDS

Success criteria are outlined through the first three-year monitoring period. Survival rate is the primary performance standard that would be used to determine project success.

Feature	Performance Criteria and Assessment Method	Year 1	Year 2	Year 3
Train Landscape Contractors	Biologist provides training regarding protected biological resources and target weeds for all workers who implement or maintain restoration areas.	100%	100%	100%
Plant Installation	Survival Rate	>75%	>60%	>50%
Weed Eradication	% cover of non-native weeds	<25%	<25%	<25%
Erosion Control and Water Quality (slope and streambank protection)	Rills, gullies, or sediment loads shall be repaired or removed. Repaired areas shall be protected from erosion with bio-degradable materials and/or revegetated prior to the next rain event.	As-needed	As-needed	As-needed
Willow height	Approximate the average height of patches of willows to the nearest foot.	<1 ft	2 ft	>4 ft

By year five, the following additional performance standards would be met:

1. Five years post-construction, 75% native absolute live cover within the Project area.
2. Five years post-construction, less than 15% non-native absolute live cover within the Project area.

5.5 Non-native Tree Removal Performance Targets

Baseline cover (nonnative/native) as determined by pre-Project surveys would be used to determine success of restoration within the acacia removal area. Post-restoration aerial imagery would be used to assess the percentage change in cover of acacia. Quantitative monitoring plots would be sampled pre- and post-restoration to ground truth drone data, monitor native plant establishment, and assess weed cover. Performance targets would be considered met if treatments successfully kill and remove acacia and native replacement species survive and increase during the monitoring period.

6 MAINTENANCE, SITE PROTECTION, AND FINANCIAL ASSURANCES

6.1 Maintenance

Final restoration plans will include detailed weed removal and other maintenance requirements.

- Restoration sites would be weeded one week after the first inch of rain received in the fall with emphasis on eliminating seedlings of target weeds and non-native annual grasses. This measure would be implemented in the first three years of the restoration project.
- Restoration sites would be checked for weed competition and weed control would be performed monthly during the growing season (February 1 – November 30) for the first year following installation. This would be reduced to once every six weeks for year 2, and once every other month for year 3. Weed control would be performed annually in the spring in years 4 and 5.
- Restoration sites would be checked for target weeds during monthly maintenance and treated as needed. A Project Biologist would review sites monthly during years 1 to 3 and annually during years 4 and 5 and would direct weed removal by hand, herbicide, or other established methods to encourage the growth of native species.
- Upland restoration sites would be provided with water, as needed, to maintain riparian shrubs, especially during years 1 and 2.

6.2 Site Protection

Habitat restoration areas on VSFB property would be mapped and GIS shapefiles provided to VSFB resource managers to prevent base activities or planned projects from occurring within sensitive restoration areas.

6.3 Financial Assurances

A trust fund (or equivalent) would be established by Union Pacific Railroad and managed by Althouse and Meade, Inc. to cover restoration area repairs and maintenance costs. UPRR via Althouse and Meade, Inc. would hire a landscape contractor to implement restoration and would provide a funding to maintain restored areas for five years. UPRR has budgeted on-site mitigation, maintenance, and monitoring into their construction plans for facility maintenance projects. UPRR would provide a letter of assurance that finances are committed to restore habitat impacted by railroad facility maintenance operations.

7 REPORTING REQUIREMENTS

7.1 Annual Reports

Annual reports would be provided to VSFB and UPRR by December 31 of each year following plant installation. Reports would include a summary of all completed work, monitoring visits, and all wildlife observed in the restoration areas. The adequacy of slope and stream bank protection would be monitored and reported and extent of erosion and sedimentation into Honda Creek (if any) would be documented. Reports would provide quantitative and qualitative assessments of progress in meeting performance criteria and recommend management actions as necessary. If the project is not expected to meet Year 5 performance standards, an adaptive management strategy would be implemented immediately (Section 8).

7.2 Final Report

Successful restoration and revegetation may take up to 5 years. The Year 5 final report, expected by fall/winter 2029, would summarize all data collected during the monitoring period. If Year 5 performance standards are met, the final monitoring report would include a notice of project completion.

If required performance standards are not met by Year 5, a remediation plan would be prepared for approval by VSFB, and annual monitoring of the sites would continue until successful restoration is achieved.

8 ADAPTIVE AND LONG-TERM MANAGEMENT

8.1 Vegetation

When warranted, reseeding, water application for upland shrubs, and additional restoration plantings and weeding would be implemented based on results of monitoring site visits. Recommendations for remediation such as re-planting or re-seeding would be provided to UPRR, VSFB, and the designated landscape contractor as soon as practicable following each monitoring visit.

8.2 California Red-Legged Frog

Monitoring during the first three years following restoration would define the baseline metric against which future monitoring results would be compared. Considering natural variability that may be caused by annual variations in rainfall or temperature, if a reduction in CRLF abundance is observed for at least two consecutive survey periods, results would be evaluated in a management review meeting. Adaptive management strategies may include management of predators or alteration of vegetation management techniques.

9 REFERENCES

[USFWS] United States Fish and Wildlife Service. 2005. Revised guidance on site assessments and field surveys for the California Red-Legged Frog; [cited 2022 Feb 24]. Available from: https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/Documents/crf_survey_guidance_aug2005.pdf

[WDFW] Washington Department of Fish and Wildlife. 2004. Stream habitat restoration guidelines; [cited 2022 Feb 24]. Available from: https://wdfw.wa.gov/publications/00043

APPENDIX M. WETLAND DELINEATION (ALTHOUSE AND MEADE, FEBRUARY 2022)

Delineation of Potentially Jurisdictional Wetlands and Waters

for

Union Pacific Railroad Milepost 304.88
La Cañada Honda Bridge Replacement Project
Santa Barbara Subdivision



Prepared for

Union Pacific Railroad Company
Steve Cheney, Sr. Director of Design & Environmental
1400 Douglas Street, Stop 0910
Omaha, NE 68179-0910

by

ALTHOUSE AND MEADE, INC.
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(805) 237-9626

Revised February 2022

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Attachment

ATTACHMENT A. WETLAND DETERMINATION DATA FORMS

Cover Page: Honda Creek below La Cañada Honda Bridge facing west. February, 2018.

DEFINITIONS OF WETLAND INDICATORS

Wetland Plant Indicator Status Ratings in Order of Wetland Affinity

OBL	Obligate	Hydrophyte, almost always occur in wetland. Estimated probability >99 percent to occur in wetlands under natural conditions.
FACW	Facultative Wetland	Hydrophyte, usually occur in wetland, but may occur in non-wetland. Estimated probability >67% to 99% to occur in wetlands under natural conditions.
FAC	Facultative	Equally likely to occur in wetland and non-wetland. Estimated probability 33% to 67% to occur in wetlands under natural conditions.
FACU	Facultative Upland	Non-hydrophyte, usually occurs in non-wetland, but may occur in wetland. Estimated probability 1% to <33% to occur in wetlands under natural conditions.
UPL	Upland	Almost never occur in wetland. Estimated probability <1% to occur in wetlands under natural conditions.
NL	No Listed	Species not included in federal list of wetland indicator plants. Assumed upland for purposes of wetland analysis.

1 INTRODUCTION

1.1 Purpose

This report provides a delineation of potential jurisdictional wetland and non-wetland waters according to federal standards on the Union Pacific Railroad (UPRR) Right of Way (ROW) (Study Area) and adjacent Vandenberg Space Force Base (VSFB) property in Santa Barbara County, California for UPRR. Its purpose is to describe potentially jurisdictional waters and wetlands according to the Clean Water Act (CWA) Section 404, the Porter-Cologne Water Quality Act (State Water Code), and Fish and Game Code Section 1600. This document presents a comprehensive inventory and mapping effort of wetland and non-wetland aquatic resources within the Study Area and provides information for owners, the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Coastal Commission, and VSFB (Lead Agency) in decisions regarding activities in the Study Area. Section 2.0 provides more detail on the regulatory framework and scope of this jurisdictional delineation.

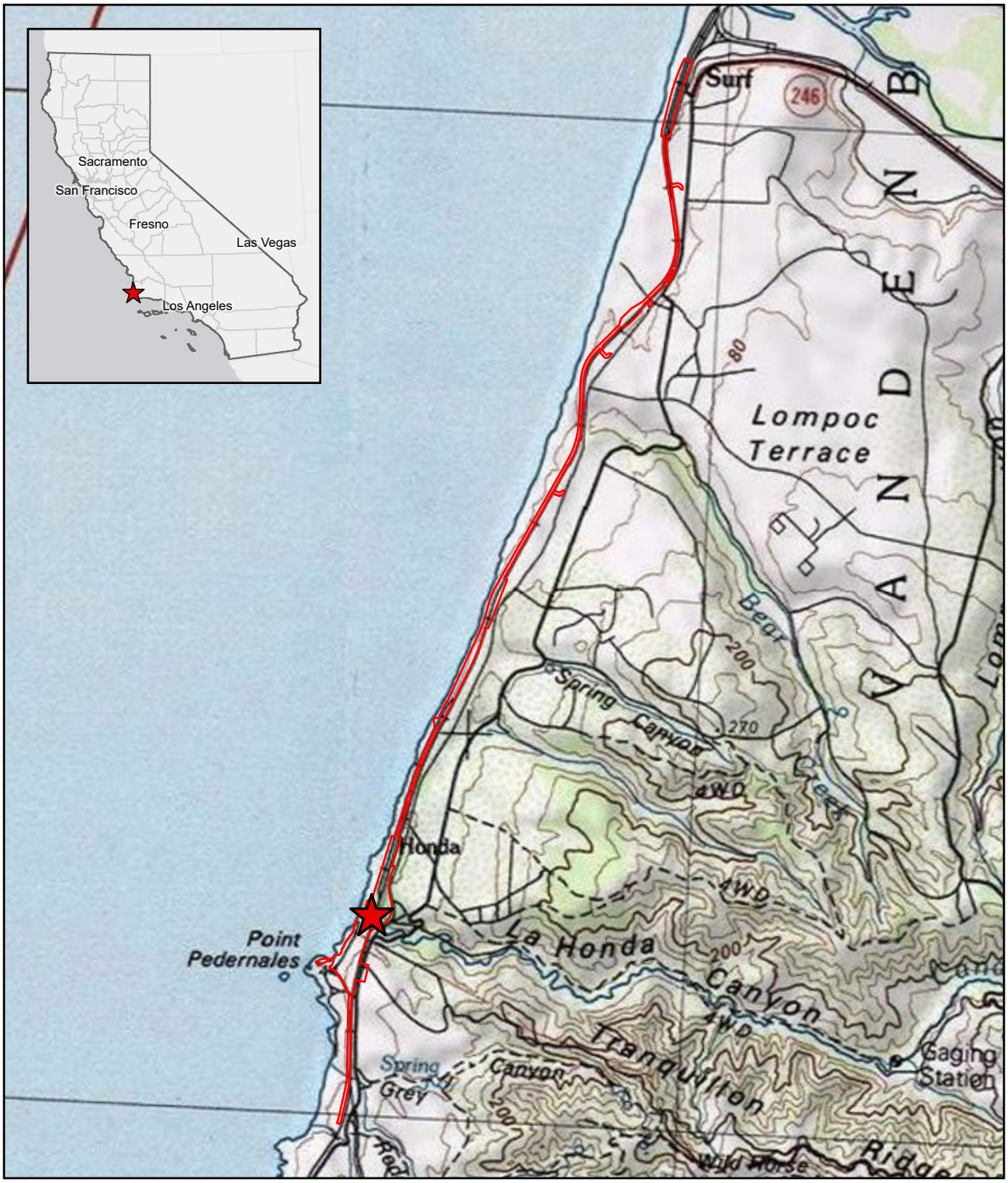
1.2 Study Area Location and Extent

La Cañada Honda (Honda Creek) crosses through UPRR property within VSFB located in central Santa Barbara County. The Study Areas is within the Coastal Zone, approximately 10 miles southwest of Lompoc, California. Approximate coordinates for the center of the Project area are 34.608709° N / 120.636024° W (WGS84) in the Point Arguello United States Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1). Elevation ranges from approximately 0 to 170 feet above mean sea level. The Study Area for this report is focused in La Cañada Honda (Honda Canyon) adjacent to the bridge but also includes portions of the surrounding terrace west of Coast Road.

1.3 Current Conditions

UPRR's Honda Bridge is positioned over Honda Creek on the coastal edge of VSFB between Coast Road and the Pacific Ocean (Figure 2). The Study Area is drawn to accommodate activities associated with replacing Honda Bridge and includes mostly coastal terrace adjacent to Coast Road. Honda Canyon and its associated wetlands, waters, and beach is included within the Study Area ranging from Coast Road on the east to the Pacific Ocean on the west.

Figure 1. United States Geological Survey Topographic Map



Legend

Study Area (182 acres)

Honda Bridge Replacement Location

N

0 0.5 1 Mile

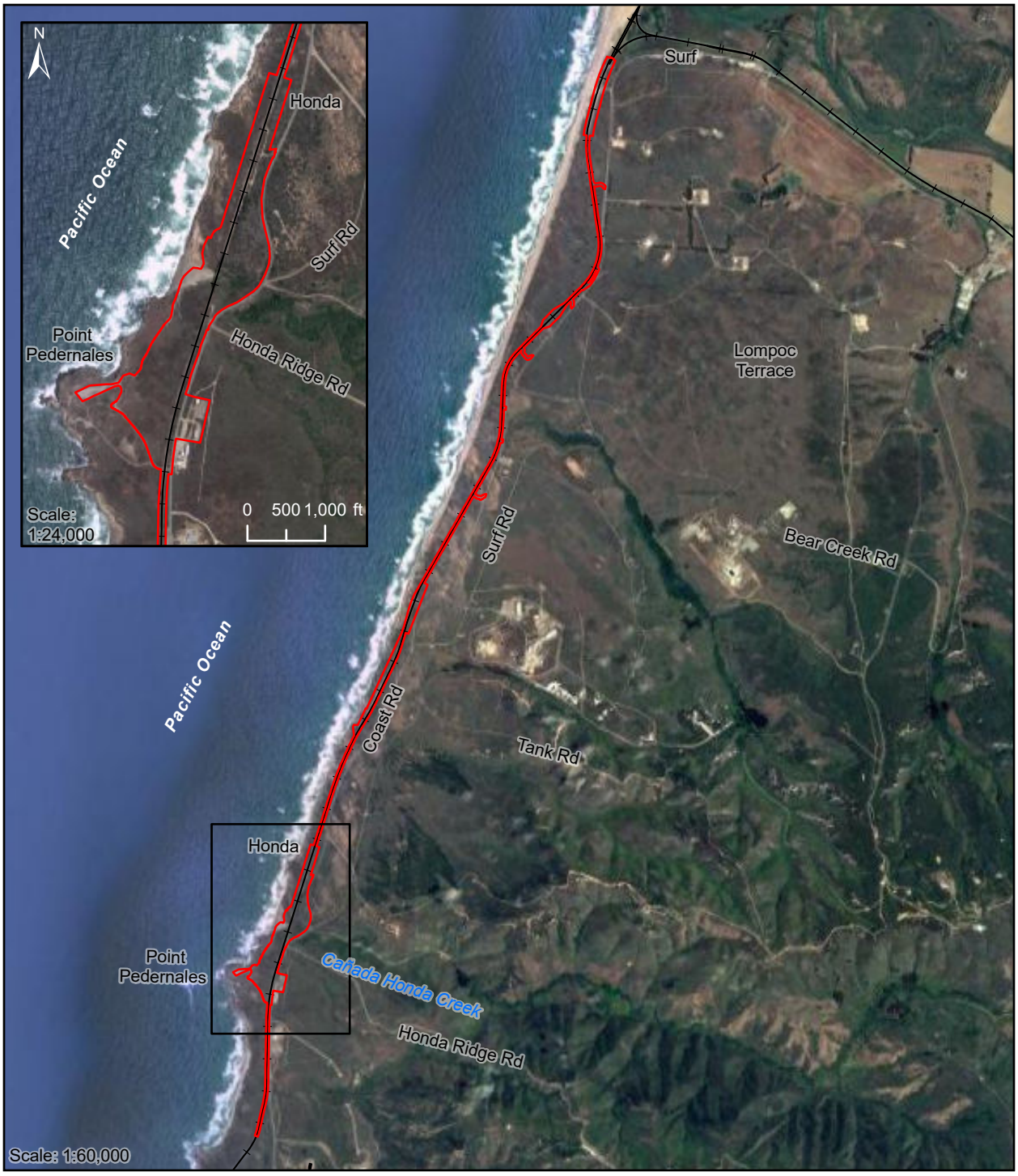
Union Pacific Railroad
La Cañada Honda Bridge Replacement
Map Center: 120.62244°W 34.63748°N
Santa Barbara County, California

USGS Quadrangles: Point Arguello and Surf

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Map Updated:
October 18, 2021 10:37 AM by SAF

Figure 2. Aerial Photograph



Legend

Study Area (182 acres)

Union Pacific Railroad

N

0 0.5 1 Miles

Union Pacific Railroad - La Cañada Honda Bridge Replacement
Map Center: 120.61341°W 34.63847°N
Santa Barbara County

Imagery Source: Google Maps Satellite

1.3.1 Hydrology

The Study Area is located adjacent to the Pacific Ocean on VSFB. Water moves through the Study Area within Honda Canyon as Cañada Honda Creek (Honda Creek) and then exits to a sandy beach where it pools, moves subsurface, or flows directly into the ocean depending on the time of year and tidal movement (Figure 3). The Study Area is in the Santa Barbara Coastal watershed (HUC8) which is formed by the southern and western aspect of the Santa Ynez Mountains (Figure 4). The watershed for Honda Creek and its tributaries is approximately 7,500 acres.

Between 1956 and 1979, the Air Force filled an approximately 500-foot-wide and 90-foot-deep portion of Honda Canyon just upstream of UPRR's Honda Bridge to allow the construction of Coast Road (Figure 5). Two corrugated pipes, approximately 330-feet-long and 13 feet in diameter, channel the flow of Honda Creek through the fill. The pipe outlets are approximately 600 feet upstream of Honda Bridge. Between the pipes and the bridge, water flows northwestward in a main channel and then bends south again at the bridge. Additional historic or secondary flow paths south of the main channel are evident through topography and drift deposits (Figure 6).

FEMA has not mapped the floodplains within the Study Area in the National Flood Hazard Layer due to the property's access restrictions (FEMA 2005).

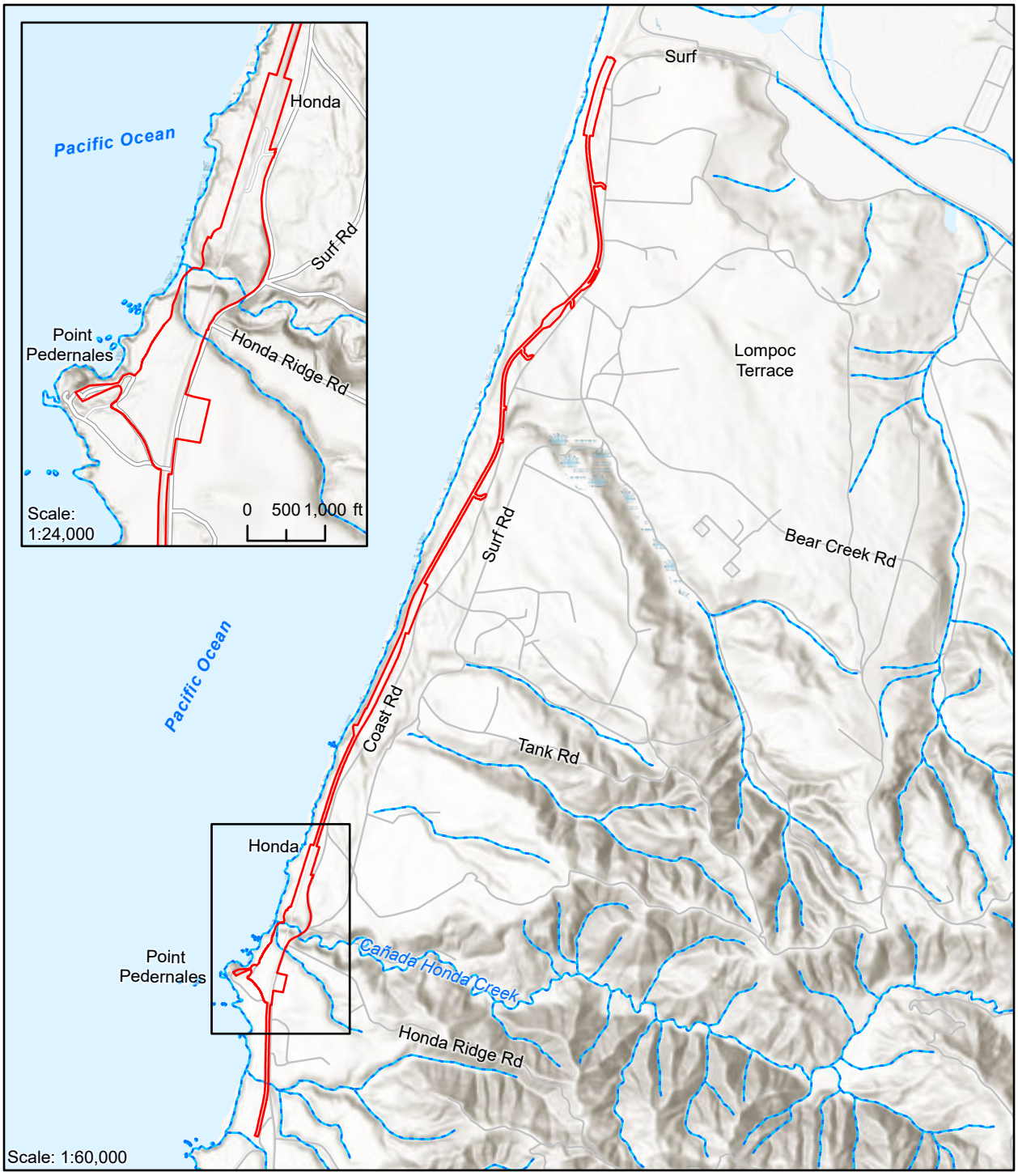
1.3.2 Vegetation and Habitats

Shrubby arroyo willow (*Salix lasiolepis*) thickets occur along the southern portion of the channel with round-leaved leather root (*Hoita orbicularis*), and California blackberry (*Rubus ursinus*) in the understory. A suite of herbaceous wetland species occurs on the channel bank and floodplain, including stinging nettle (*Urtica dioica* subsp. *holosericea*), annual beard grass (*Polypogon monspeliensis*), water beard grass (*P. viridis*), iris leaved rush (*Juncus xiphioides*), low bulrush (*Isolepis cernua*), poison hemlock (*Conium maculatum*) and dock (*Rumex* spp.).

Alkali heath (*Frankenia salina*) and sea fig (*Carpobrotus edulis*) dominate the outlet of a small drainage and the southern portion of the Honda Creek estuary, along the edge of the canyon slope. Other species include alkali heliotrope (*Heliotropium curassavicum* var. *oculatum*) and marsh jaumea (*Jaumea carnosa*).

The Honda Creek estuary contains tidal wetland species distributed in response to hydrologic processes (e.g., scouring and sediment deposition), saltwater inundation, and wetland condition. Marsh jaumea dominates the floodplain with common three-square bulrush (*Schoenoplectus pungens* var. *longispicatus*), alkali heath, alkali heliotrope, and saltgrass (*Distichlis spicata*) as common associates, though these species are occasionally locally dominant. Saltmarsh bulrush (*Bolboschoenus maritimus* subsp. *paludosus*) occurs along the banks and channel margin, and disturbance adapted species such as annual beard grass, water beard grass, giant horsetail (*Equisetum telmateia* subsp. *braunii*), water speedwell (*Veronica anagallis-aquatica*), water cress (*Nasturtium officinale*), fringed willowherb (*Epilobium ciliatum*) and Heermann's lotus (*Acmispon heermannii*) occur in the regularly scoured low-flow channel and along depositional gravel bars. The intermittent stream and pools support aquatic species such as mosquito fern (*Azolla filiculoides*) and alga mats.

Figure 3. National Hydrography Dataset



Legend

Study Area (182 acres)

Drainages and Coastline

N

0 0.5 1 Mile

Union Pacific Railroad -
La Cañada Honda Bridge Replacement
Map Center: 120.61341°W 34.63847°N
Santa Barbara County

Data Source: United States Geological Survey

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Map Updated:
December 27, 2021 11:21 AM by ZAR

Figure 4. Hydrologic Unit Codes



Legend

- Study Area (182 acres)
- Cañada Honda Creek - Frontal Santa Barbara Channel

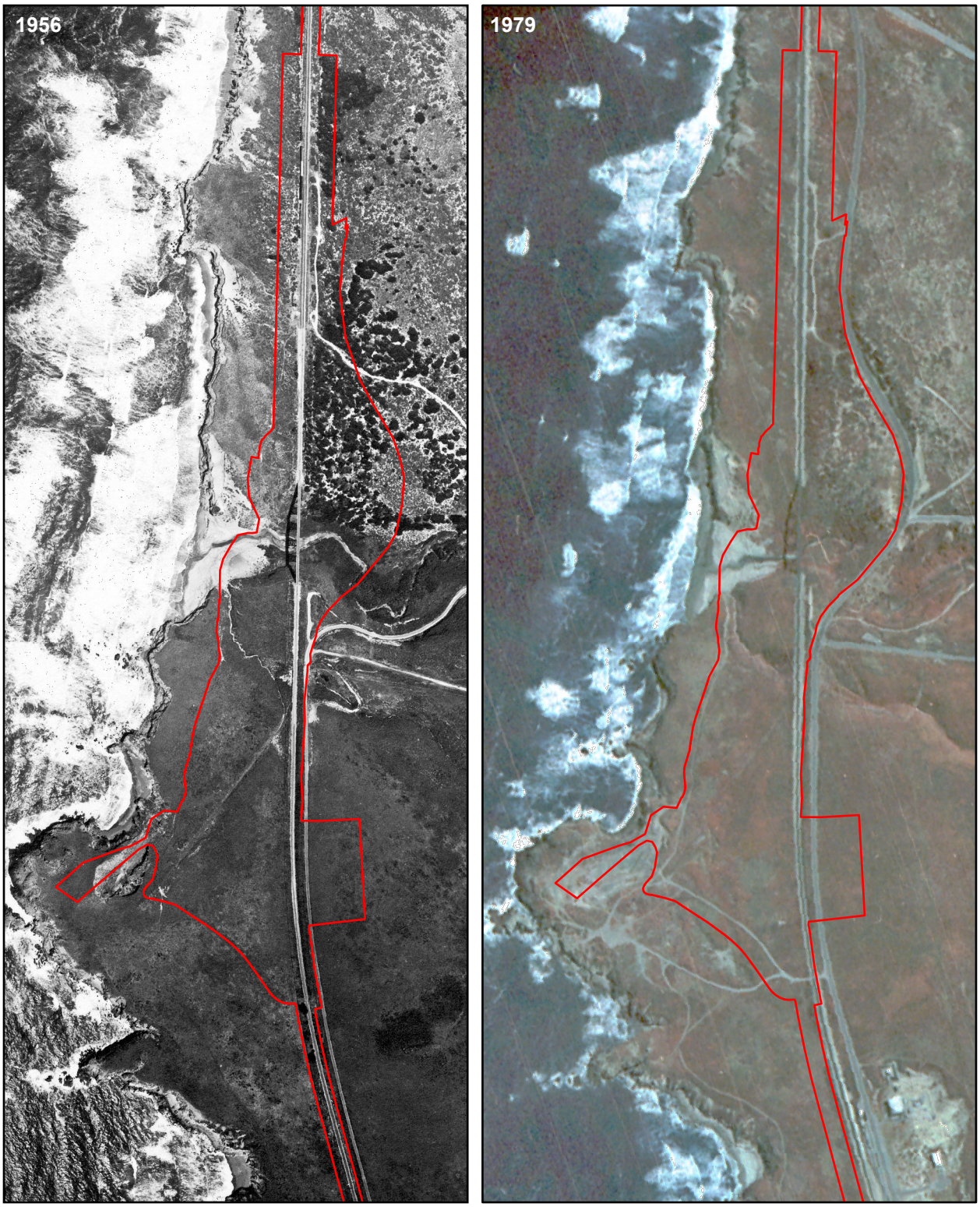
N

0 1.5 3 Miles

Union Pacific Railroad -
La Cañada Honda Bridge Replacement
Map Center: 120.60063°W 34.58827°N
Santa Barbara County

Data Source: United States Geological Survey

Figure 5. Aerial Imagery History



Study Area (182 acres)

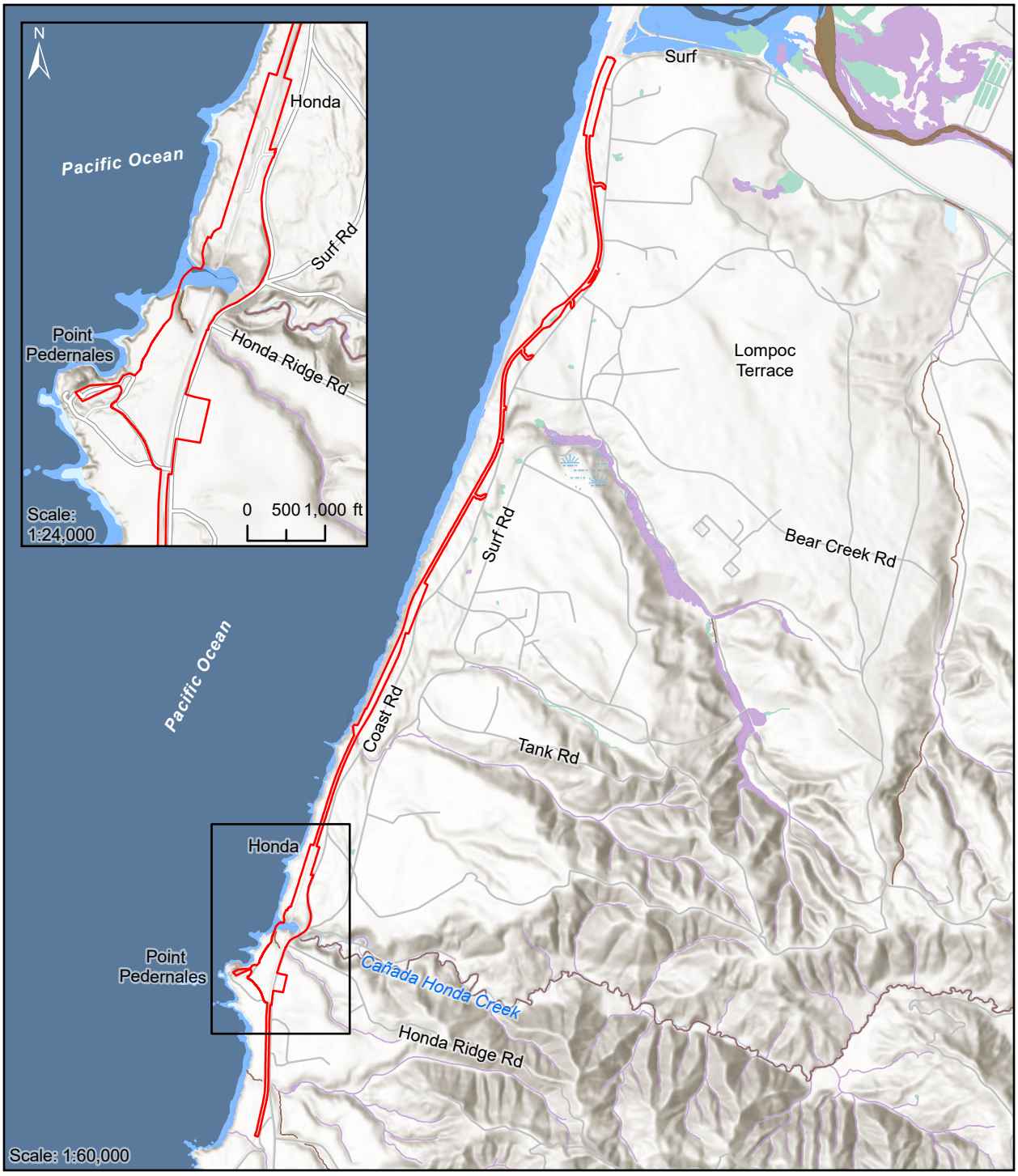
N

0 0.25 0.5 Miles

Union Pacific Railroad -
La Cañada Honda Bridge Replacement
Map Center: 120.6373°W 34.60735°N
Santa Barbara County

Data Source: UCSB MIL

Figure 6. National Wetland Inventory



Legend

- Study Area (182 acres)
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/ Shrub Wetland
- Riverine

N

0 0.5 1 Miles

Union Pacific Railroad - La Cañada Honda Bridge Replacement
Map Center: 120.61341°W 34.63847°N
Santa Barbara County

Data Source: United States Fish and Wildlife Service

1.3.3 Soils

Soil map units from the Natural Resource Conservation Service (NRCS) Soil Survey Geographic Database (SSURGO) are not available for the study area and surrounding areas due to military base confidentiality.

1.3.4 Climate

The climate data for Lompoc (Station ID 045064, 10 miles northeast of Project site) indicates that average 30-year rainfall is just under 16 inches (Table 1) for rainfall years that begin in July and end in June of the following calendar year. The 2016-2017 and 2018-2019 rainfall years were above average totaling 20.2 and 18.4 inches, respectively. However, there was a decrease in rainfall during the 2017-2018, 2019-2020, and 2020-2021 rainfall years, totaling 8.15, 11.17, and 8.4 inches, respectively (AcACIS 2020). Sample sites were analyzed in February 2018 and in October 2021, after a below average rainfall (Chart 1).

The National Climatic Data Center (NCDC) provided monthly weather data for Lompoc, California (Western Regional Climate Center 2021).

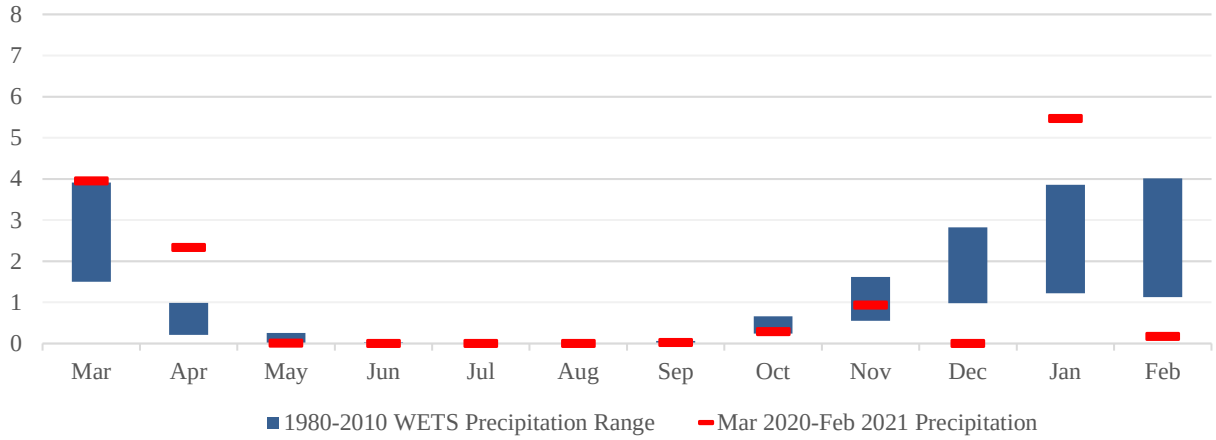
TABLE 1. PRECIPITATION BY MONTH

Data is provided in inches for the rain year prior to field work as well as the historical average. Mean precipitation is provided for the NCDC monthly normal, and monthly totals for the other years shown.

Year	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
1971-2000	0.01	0.05	0.25	0.49	1.34	2.16	3.19	3.58	3.38	0.93	0.31	0.04	15.73
1981-2010	0.01	0.03	0.10	0.74	1.41	2.56	3.33	3.59	2.88	1.01	0.29	0.04	15.99
2016-2017	0.01	0	0	1.07	1.88	2.16	6.31	7.19	0.86	0.36	0.36	0	20.20
2017-2018	0	0	0	0.26	0.04	0.06	2.21	0.17	5.10	0.31	0	0	8.15
2018-2019	0	0	0	0.72	1.48	1.29	5.30	5.95	2.49	0.14	1.02	0	18.39
2019-2020	0	0.04	0	0	1.60	2.65	0.59	0	3.95	2.33	0.01	0	11.17
2020-2021	0	0	0.02	0.29	0.93	0	5.47	0.17	1.48	0	0.04	0	8.40

CHART 1. WETS[1] PRECIPITATION BETWEEN 1980 AND 2010 COMPARED WITH 2020-2021 RAINFALL (INCHES)

WETS average range of precipitation from a probability analysis of 1981 to 2010 data compared to 2020-2021 precipitation. Data were retrieved from USDA



[1] WETS tables display the average range of precipitation by month by providing a probability analysis.

2 REGULATORY FRAMEWORK

2.1 United States Army Corps of Engineers

Section 404 of the CWA authorizes the USACE to regulate activities that discharge dredged or fill material to wetlands and other waters of the United States. The term "waters of the United States" encompasses resources described by the Environmental Protection Agency (EPA) and the Corps regulations, 40 Code of Federal Regulations (CFR) § 120.2(1) and 33 CFR § 328.3(a). The geographic limits of relevant federal jurisdiction for non-tidal waters of the U.S. are defined at 33 CFR § 328.4(c).

The EPA defines wetlands as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (EPA regulations at 40 CFR § 120.2(3); USACE regulations at 33 CFR § 328.3(b)). Wetlands are considered "special aquatic sites" under the USACE definition. Special aquatic sites are afforded protection under the CWA (Sections 401 and 404).

The USACE asserts jurisdiction over wetlands that exhibit hydrology, hydric soil, and hydrophytic vegetation (three indicators) by the standard set forth in the Arid West Regional Supplement (USACE 2008b). These areas must also exhibit a significant nexus to a Traditionally Navigable Water (TNW). For non-wetland water features, USACE jurisdiction is limited to the Ordinary High Water Mark (OHWM).

Navigable Waters Protection Rule (rescinded). On June 9, 2021, the EPA and the Department of the Army (Army) announced their intent to revise the definition of "waters of the United States (WOTUS)" put in place under the Navigable Waters Protection Rule (NWPR) on April 21, 2020 (85 FR 22250). Water regulations set forth in 2015 (2015 Rule) were repealed in 2020 as part of the NWPR. The NWPR defined categories of jurisdictional non-wetland waters based on stream classifications and specifically excluded ephemeral streams as jurisdictional tributaries (USACE 2020). When determining jurisdictional status of wetlands, the scope of *adjacency* was reduced to wetlands with only certain surface water connections to other jurisdictional waters under the NWPR. This excluded wetlands formed by artificial berms, for instance, which were considered adjacent under the pre-2015 regulatory regime and the 2015 Rule regardless of the presence or absence of a hydrologic surface connection (85 FR 22250).

Current Implementation of Waters of the United States (September 2021). The EPA and USACE (the agencies) are "in receipt of the U.S. District Court for the District of Arizona's August 30, 2021, order vacating and remanding the Navigable Waters Protection Rule in the case of *Pascua Yaqui Tribe v. U.S. Environmental Protection Agency* (EPA 2021)." The agencies are interpreting WOTUS consistent with the pre-2015 regulatory regime until further notice (40 CFR 230.3(s)). The following definitions are provided for the term waters of the U.S. (EPA 2021):

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;

3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
    a. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    c. Which are used or could be used for industrial purposes by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States under this definition;
5. Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;
6. The territorial sea;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the indicators of this definition) are not waters of the United States.

Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with EPA (EPA 2021).

As the EPA and USACE work to restore longstanding protections while redefining WOTUS, the following regulatory guidance established in 2008 will be used for determining jurisdictional status for onsite wetlands and waters:

2.2 Regional Water Quality Control Board

Section 401 of the Clean Water Act requires that any applicant for a Section 404 permit also obtain a Water Quality Certification from the State (401 Certification). The Water Code defines "waters of the State" broadly to include "any surface water or groundwater, including saline waters, [natural, and artificial wetlands] within the boundaries of the state." In April 2019, the State Water Resources Control Board (SWRCB) adopted procedures to define an area as a wetland if it meets three indicators: wetland hydrology, wetland soils, and (if vegetated) wetland plants. The definition also states: "An area is a wetland if: (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation. The Procedures provide the same wetland delineation methods that are used by the Army Corps of Engineers."

"Waters of the State, by definition, includes more aquatic features than Waters of the U.S., which defines the jurisdiction of the federal government. Waters of the State are not so limited. In

addition, the federal definition of a wetland requires a prevalence of wetland vegetation under normal circumstances. To account for wetlands in arid portions of the state, the Water Board's definition differs from the federal definition in that an area may be a wetland even if it does not support vegetation. If vegetation is present, however, the Water Board's definition requires that the vegetation be wetland vegetation. The State Water Board's proposed definition clarifies that vegetated and unvegetated wetlands will be regulated in the same manner." The effective date for the approved Procedures is May 28, 2020.

The state will also take jurisdiction over a non-wetland water to the OHWM, and tidal waters to the higher high tide line (CWA section 404 jurisdiction). Regional Water Quality Control Boards (RWQCB) provide regulatory oversight of wetland protection and impact mitigation.

2.3 California Coastal Commission

Wetlands found in the Coastal Zone are regulated under the California Coastal Act of 1976 (CCA) and are within the stricter jurisdiction of the California Coastal Commission (CCC). Unlike the USACE and RWQCB definitions requiring hydrology, hydric soils, and hydrophytic vegetation, the California Code of Regulations (14 CCR 13577) states that the CCC requires only one parameter. The CCA includes requirements related to coastal zone management and wetlands protection, such as coastal development permits. The CCA established the CCC as the coastal regulatory and management agency. The CCC, which enforces the Coastal Act, defines coastal wetlands in its regulations as:

> *Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentration of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some during each year and their location within, or adjacent to vegetated wetland or deep-water habitats.*

The CCC's map requirement and boundary determinations criteria are provided in 14 CCR §13576-13577. In addition to wetlands, the CCC will take jurisdiction over tidelands, submerged lands, public trust lands, beaches, coastal bluffs, and estuaries. Estuary jurisdictional boundaries are to be measured 300 feet landward from the mean high tide line. The tide lines are defined similarly to the USACE tidal data analysis.

3 DELINEATION METHODS

3.1 Overview of Sampling Methodology

Jurisdictional wetlands and other waters were identified using methods and guidelines described in the 1987 Manual, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (hereafter "2008 Supplement"; USACE 2008b), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008a). Site visits were made on February 22, 2018, and October 1, 2021, with multiple visits between 2018 and 2021 for site conditions inspections.

3.2 Wetland Classification from National Wetland Inventory

The Classification of Wetlands and Deepwater Habitats of the United States was developed by wetland ecologists, with the assistance of many private individuals and organizations and local, state, and Federal agencies (USGS 2013). It was designed for use over a broad geographic area—all U.S. States and Territories—by individuals and organizations with varied interests and objectives. The definition of wetland in this classification delimits the biological extent of wetland, as influenced by substrate properties and the hydrologic characteristics at each site. In marine habitats, the classification separates subtidal (below the fluctuating line of the tide, i.e., perpetually submerged) and intertidal (substrate is flooded and exposed with tides) habitats.

DOI (1979) intended that all available information should be used in making a wetland identification, as follows:

- If plants and soil are present at a site, then both a predominance of hydrophytes and a predominance of undrained hydric soil, as well as wetland hydrology, should be required for positive wetland identification.
- If plants are present but soil is absent (e.g., Algal Aquatic Beds on rock substrates), then a predominance of hydrophytic vegetation, as well as wetland hydrology, should be required for a positive wetland identification.
- If plants are absent but soil is present, then a predominance of undrained hydric soil, as well as wetland hydrology, should be required for positive wetland identification.
- If neither plants nor soil is present, then the wetland identification must be made strictly on the basis of hydrology. In this case, the substrate should be "saturated with water or covered by shallow water at some time during the growing season of each year." Cowardin et al. (1979) fully realized how vague this hydrologic definition was but, given the lack of detailed hydrologic data from the diversity of wetland types, geologic regions, and climatic regions of the U.S., there was no way they could have been more specific.

Even today, these data are not readily available across the nation. In these examples, three (3) indicators – hydrophytic vegetation, undrained hydric soil, and wetland hydrology; two (2) indicators—hydrophytic vegetation and wetland hydrology or undrained hydric soil and wetland hydrology; and one (1) indicator— wetland hydrology, respectively, would be used to make the identification, based on the features available at the particular site.

3.2.1 Wetlands

Soil pits were dug by hand at eight sampling sites based on the presence of hydrophytic vegetation, wetland hydrology, or low relief indicated potential wetland. For each wetland site an adjacent upland observational pit was dug to compare upland soil and vegetation features. Locations of all five sampling sites were recorded on the Jurisdictional Delineation Map (Exhibit A) and USACE Arid West Region Wetland Determination Data Forms (Attachment A).

3.2.1.1 Wetland Hydrology

The presence or absence of wetland hydrology field indicators was assessed following methodology presented in the 1987 Manual and the 2008 Supplement. Wetland indicators included, but were not limited to, high water table, site topography, drift lines, drainage patterns, sediment deposits, inundation, observation of wet conditions during the growing season, and saturation of soils.

3.2.1.2 Wetland Soils

Soils were examined according to methodology presented in the 2008 Arid West Supplement and 1987 Manual. Hydric soil indicators were recognized by soil characteristics from the USDA-NRCS publication, *Field Indicators of Hydric Soils in the United States* (version 8.2; USDA 2018) and the National Technical Committee for Hydric Soils (NTCHS) definition of hydric soils.

3.2.1.3 Wetland Vegetation

Vegetation in each stratum was identified to species and recorded. The indicator status of plants was confirmed by referring to the *National Wetland Plant List* (Lichvar *et al.* 2016) and the *Wetland Plants of Specialized Habitats in the Arid West* (Lichvar and Dixon 2007). Indicator status is defined in Table 4. Species dominance was noted for each stratum using the "50/20 Rule." Dominance test was calculated for all samples.

TABLE 2. WETLAND PLANT INDICATOR STATUS

Definitions of wetland plant indicator status, adopted from Lichvar and Dixon 2007.

Indicator Code	Category	Definition	% Occurring in Wetlands
OBL	Obligate Wetland	Occurs almost always in wetlands under natural conditions	>99%
FACW	Facultative Wetland	Usually occurs in wetlands, but often found in non-wetlands	67-99%
FAC	Facultative	Equally likely to occur in wetlands or non-wetlands	34-66%
FACU	Facultative Upland	Usually occurs in non-wetlands, but often found in wetlands	1-33%
UPL	Upland	Occurs almost always in non-wetlands under natural conditions	<1%
NA	No agreement	The regional panel was not able to reach a decision on this species	N/A

Indicator Code	Category	Definition	% Occurring in Wetlands
NI	No indicator	Insufficient information was available to determine an indicator status	N/A
NO	No occurrence	The species does not occur in that region	N/A
(+) or (-)	Facultative	A positive (+) or negative (-) sign was used with Facultative indicator categories to more specifically define the regional frequency of occurrence in wetlands. The positive sign indicates a frequency toward the higher end of the category (more frequently found in wetlands). A negative sign indicates a frequency toward the lower end of the category (less frequently found in wetlands).	
An asterisk (*) following a regional indicator identifies uncertain designation based on limited information which to determine the indicator status.			

3.2.1.4 Wetland Connectivity/Adjacency

Connectivity to Traditional Navigable Waters and their tributaries is established via field work where accessible, as well through analysis of aerial photographs, United States Geographic Service (USGS) topographic map, USGS National Hydrography Dataset, and site-specific topographic survey. This connectivity determines whether the feature has "significant nexus" (i.e. it significantly affects the chemical, biological, or physical integrity of a Traditional Navigable Water).

3.2.2 Non-Wetland Waters

Drainages were identified onsite as features that display evidence of hydrology but do not contain vegetation suggestive of wetlands. Evidence of OHWM was used to determine extent of Corps jurisdiction over these non-wetland waters of the U.S. The OHWM Manual (USACE 2010) lists and describes indicators associated with areas that become flooded or ponded but are not dominated by wetland vegetation and the duration of flooding, ponding, and/or near-surface soil saturation (less than or equal to 12 inches) is not sufficient to cause hydric soils to form or wetland hydrology conditions to occur. Ordinary High Water Mark was identified on Exhibit A and noted according to guidance provided in the OHWM Manual.

Cross-sections were not completed because detailed topographic survey is available and the variable dimensions of the OHWM are well defined topographically.

3.3 Mapping Methodology

Mapping efforts in 2018 utilized Samsung Galaxy Tab 4 tablets equipped with Garmin GLO GPS Receivers. Delineation boundaries were drawn using aerial photography, in field notation, and site-specific contours provided by VSFB from 2017 lidar (light detection and ranging) data. Existing datasets such as the NHD and the USGS topographic maps were considered during mapping. Our results vary somewhat from these existing publications due to the finer scale and on-the-ground data collection techniques used in our work. In the 2021 site visits, field spatial data were collected using an Apple iPhone connected to an Eos Arrow 100® GNSS receiver with sub-meter accuracy.

Additional field spatial data was collected on smart phones using AmigoCloud, a field data collection application. Results from both surveys were imported into Esri ArcGIS Pro, a Geographic Information Systems (GIS) software suite, and interpreted into maps. Maps were produced at a minimum scale of 1 map inch to 400 feet on the ground using field data and presented over the site-specific topographic contours.

4 TECHNICAL FINDINGS

Wetland habitats and drainage features in the Study Area meet federal and state jurisdictional definitions (Table 2). Our 2018 and 2021 field work resulted in the delineation of 7.39 acres of jurisdictional wetlands and non-wetland waters, specifically 6.97 acres of Federal and State, and 0.42 acres State only within the Study Area.

4.1 Federal Wetlands

Two federal wetland patches were mapped within the Study Area adjacent to Honda Creek (Exhibit A). The first wetland feature is a palustrine, emergent, non-tidal (DOI 1979) wetland dominated by multi-stem arroyo willows and marsh baccharis (*Baccharis glutinosa*) on the eastern side, closely adjacent to Honda Creek (Feature B; Photo 1). This wetland has stratified soil layers of dark organic material and sand, indicating periods of flooding. Drift deposits and biotic crust are also common.

As the creek bends south, the shrub vegetation transitions to an herbaceous wetland dominated by marsh jaumea, alkali heath, and saltgrass (Feature C; Photos 1 and 2). The feature continues until the beach no longer supports vegetation. Soil pits in this area revealed depletions and redoximorphic features to satisfy three hydric soil indicator definitions. Drift deposits were also present and the vegetion passed the FAC-neutral test. Upslope of the herbaceous wetland, close to the southern cliff edge are mats of iceplant.

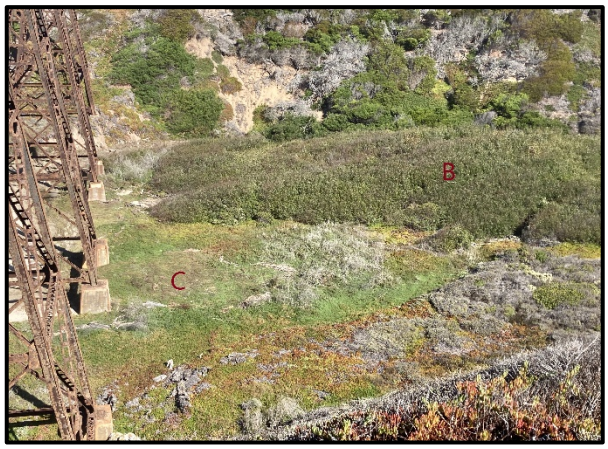


Photo 1. Arroyo willow (Feature B) in the background with coastal brackish marsh (Feature C) dominated by marsh jaumea and alkali heath in the foreground. Facing northeast, November 2, 2021.



Photo 2. Feature C showing marsh jaumea and alkali heath in the foreground, arroyo willow of feature B in the background, and upland coastal sage scrub/iceplant at right. Facing east, July 9, 2021.

4.2 Federal Non-Wetland Waters

Three types of jurisdictional Federal non-wetland waters were delineated within the Study Area. To understand the system of each feature, a narrative description provides details of each water's hydrology and OHWM indicators.

4.2.1 Honda Creek

Honda Creek flows from two 13-foot diameter culvert pipes underneath Coast Road to the Pacific Ocean. The creek is unvegetated and has water marks, sediment deposits, drift deposits, and drainage patterns as evidence of hydrology (Feature A). The bank is mostly bare, with a braided channel.

Feature A was divided into A^1 and A^2, where A^1 is estuarine and A^2 is riverine. In general, A^1 is Honda Creek shoreward and A^2 is Honda Creek east of the bridge and up to the OHWM. Feature A^1 is part of a dynamic system that has both salt and freshwater characteristics that depend on ocean tides and/or storm events where it may be flooded or completely dry. In 2018, water was present in the low flow channel and terminated in a closed lagoon above the beach (Photo 3). However, this feature was absent for much of 2021 due to low rainfall (Photo 4).



Photo 3. The outlet of Honda Creek (Feature A^1) showing a sandbar and full lagoon. Facing west, February 20, 2018.



Photo 4. The outlet of Honda Creek (Feature A^1) showing a dry sandy bed. Facing west, November 2, 2021.

Feature A^2 is generally described upstream from Honda Creek, east of Honda bridge. This feature begins to narrow around the bridge foundations and meander as it transitions upstream into freshwater habitat types.



Photo 5. Honda Creek upstream and east of the bridge, view west-northwest, Feature A[2], July 9, 2021.



Photo 6. Honda Creek northeast of Bent 5 showing the bed and bank, view southwest, Feature A[2], November 2, 2021

Based on Althouse and Meade observations, the High Tide Line (HTL) is shown on Exhibit A. We show the HTL just upstream from the bridge (Feature A[2] - riverine) where flow is occasionally influenced by wave uprush. The habitat does not coincide with estuarine resource types under Cowardin classification because it is not regularly influenced by tides.

4.2.2 Pacific Ocean

The west side of the Study Area is the Pacific Ocean, or an unconsolidated sand bottom, subtidal marine, water habitat (DOI 1979). Where the ocean meets the shore is an unconsolidated sand shore, intertidal, marine, water habitat. These areas are considered tidal non-wetland waters per USACE standards (Feature E). The NOAA data for Oil Platform Harvest (Station 9411406) lists the higher high tide line (Mean Higher High Water [MHHW]) as 5.22 feet using the 1983-2001 epoch (NOAA 2021; MLLW datum[2]). The subtidal and intertidal area comprise 4.52 acres within the Study Area.

4.2.3 Ephemeral Drainage

An ephemeral drainage that originates south of lower Honda Ridge flows west adjacent to Honda Ridge Road and through a culvert under Coast Road and the railroad before terminating at Honda Beach just east of the lower beach access road (Feature G, Photo 5). This drainage only conveys water during storm events. The lower reach of the drainage in the Study Area exhibits an unvegetated bed of sand and cobbles with iceplant and coastal scrub on the adjacent slopes (Photo 5). Hydrology indicators include drainage patterns, ripples, and sediment deposits.

[2] Use of MLLW as the datum for this location is consistent with the Corps' mapping standard of NAVD88 datum for this area. NOAA's Gaviota State Park gage 9411388 measures NAVD88 datum 0.09 feet above MLLW. Port San Luis 9412110 measures NAVD88 as 0.08 feet above MLLW. Santa Barbara 9411340 shows NAVD88 as 0.13 feet above MLLW.



Photo 7. Ephemeral drainage outlet (Feature G) east (left) of lower beach access road. Facing northeast, September 22, 2020.



Photo 8. Lower reach of ephemeral drainage (Feature G) east of lower beach access road. Facing northwest, November 1, 2021.

4.3 Additional Jurisdictional Features

Features A, B, C, and E mentioned in Sections 4.1 and 4.2 are considered jurisdictional per state standards as well as federal. Two additional areas may be considered jurisdictional by state agencies. Feature D contains a patch of deeply rooted marsh jaumea and marsh bulrush with no hydric soil indicators (Photo 7). Feature F is comprised of arroyo willow riparian woodland near the Honda Creek culverts that formed on a berm adjacent to the main stem of Honda Creek.



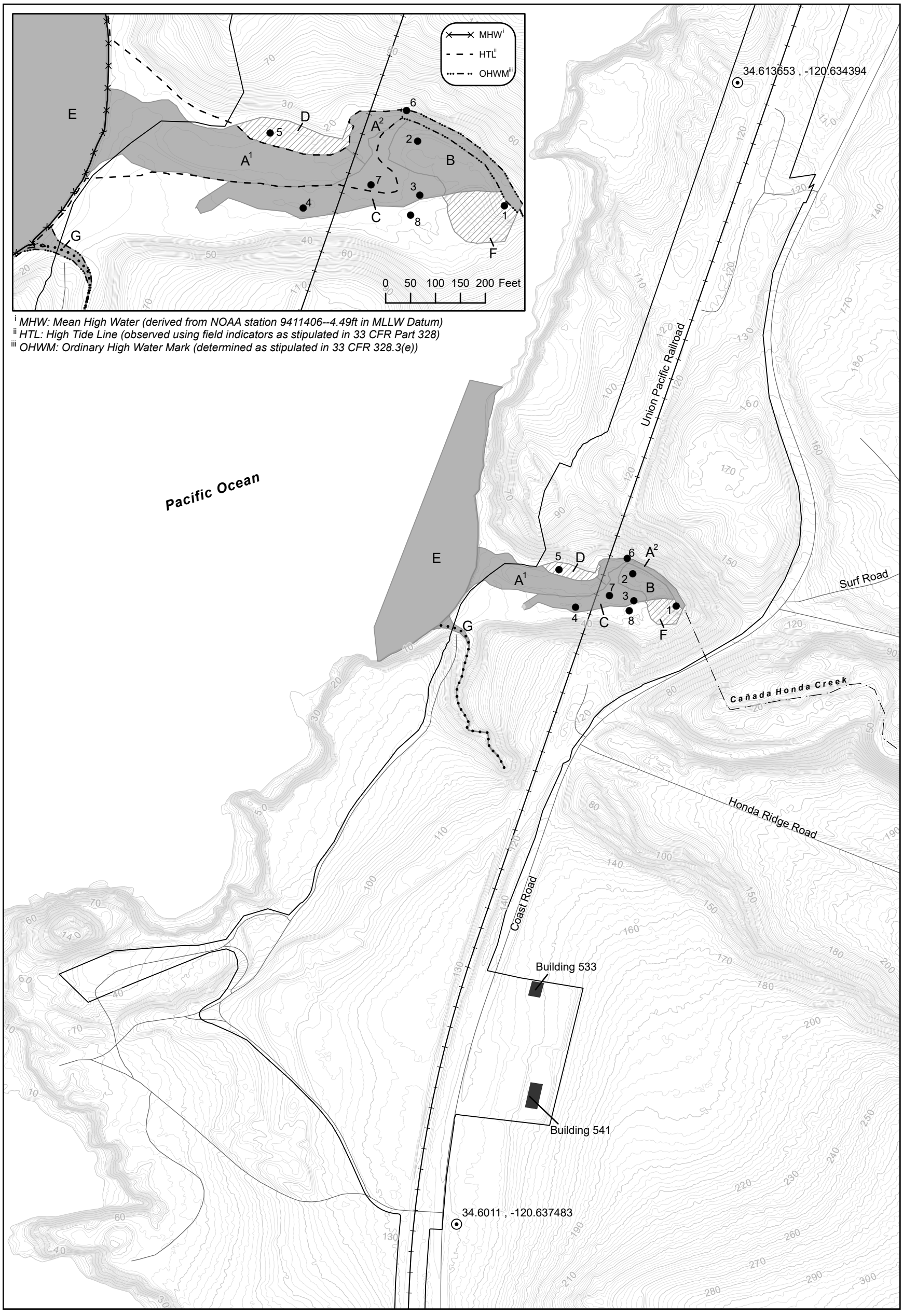
Photo 9. State wetland on floodplain (Feature D). Facing northeast, October 1, 2021.



Photo 10. Willow riparian wetland on the right side of photo, near toe of slope indicated by orange arrow. View west from Coast Road. January 14, 2018.

Exhibit A. Wetland Delineation

[i] *MHW: Mean High Water (derived from NOAA station 9411406--4.49ft in MLLW Datum)*
[ii] *HTL: High Tide Line (observed using field indicators as stipulated in 33 CFR Part 328)*
[iii] *OHWM: Ordinary High Water Mark (determined as stipulated in 33 CFR 328.3(e))*



Legend

- Federal and State Jurisdiction (6.74 acres)
- State Jurisdiction (0.42 acre)
- Ephemeral Drainage
- Perennial/Intermittent Drainage
- Sample Site
- Study Area (182 acres)
- VSFB Buildings
- Union Pacific Railroad
- Roads
- Site Control Point

N

0 100 200 300 400 Feet

Union Pacific Railroad -
La Cañada Honda Bridge Replacement
Map Center: 120.63754°W 34.60734°N
Santa Barbara County
Contour Interval: 2ft (minor),10ft (major)
Datum
Investigators: LynneDee Althouse, Adam Searcy, Zach Raposo

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BIOLOGICAL AND ENVIRONMENTAL SERVICES

Map Updated:
February 03, 2022 09:29 PM by ZAR

TABLE 3. JURISDICTIONAL FEATURE CHARACTERISTICS

Feature Type	ID	Sample Site	Dominant Species	Wetland Veg.?	Soil Indicator	Wetland Soil?	Hydrology Indicator	Hydrology?	Jurisdiction
Honda Canyon Creek – Estuarine	A[1]	n/a	FACW (90% bare ground)	✓	None		B3, B7, B10	✓	USACE RWQCB CCC
Honda Canyon Creek – Sand Streambed Lower Perennial Riverine	A[2]	1 & 6	FACW, FAC (80% bare ground)	✓	None		B1, B2, B3, B7, B9, B10, C9, D5	✓	USACE RWQCB CCC
Adjacent Wetland – Deciduous Scrub-Shrub Palustrine	B	2	FACW, NL	✓	A5	✓	B3, B12	✓	USACE RWQCB CCC
Adjacent Wetland – Persistent Emergent Palustrine	C	3, 4 & 7	OBL, FACW, FAC	✓	F3, F6, F7	✓	B3, D5	✓	USACE RWQCB CCC
Floodplain State Wetland	D	5	NL, FAC, OBL	✓	None		B3, B11, B12	✓	RWQCB CCC
Pacific Ocean – Sand Unconsolidated Bottom Sub/Intertidal Marine	E	n/a	None		None		NOAA MHHW Line	✓	USACE RWQCB CCC
Riparian – Deciduous Scrub-Shrub Palustrine	F	n/a	FACW	✓	None		None		RWQCB CCC
Ephemeral Drainage	G	n/a	None		None		B10	✓	USACE RWQCB CCC

NL: Not listed
FAC: 34-66% in wetlands
FACW: 67-99% in wetlands
OBL: 99% in wetlands

A5: Hydrogen Sulfide
F3: Depleted Matrix
F6: Redox Dark Surface
F7: Depleted Dark Surface

B1: Water Marks
B2: Sediment Deposits
B3: Drift Deposits
B7 Inundation on Aerials
C9: Saturation Visible on Aerial Imagery

B9: Water-Stained Leaves
B10: Drainage Patterns
B11: Salt Crust
B12 Biotic Crust
D5: FAC-Neutral Test

5 JURISDICTIONAL DELINEATION

The Exhibit A shows 7.16 acres of jurisdictional wetlands and waters, of which 0.92 acre meets the definition of wetland by the USACE, RWQCB, and CCC. Approximately 5.82 acres of non-wetland waters were also mapped on Exhibit A. An additional 0.42 acre of habitat may be jurisdictional per state standards only.

Honda Creek estuarine habitat includes areas of sandy tidal beach, herbaceous emergent wetland, scrub-shrub wetland, scrub-shrub riparian (likely only state jurisdiction), and a secondary channel with hydrophytic plants. South of the creek system is another drainage that flows along the access road that is jurisdictional per federal and state standards.

Wetland jurisdictional area calculations are included in Table 4.

TABLE 4. JURISDICTIONAL MEASUREMENTS

Calculated jurisdictional areas are given for the Study Area.

Feature	Type	State Resource Type	ORM Resource Type	Cowardin Classification	Jurisdiction	Area (ac)	Area (sf)
A[1]	Non-Wetland	Estuary	Tidal wetland/	Estuarine	Federal and State	0.96	42030
A[2]	Non-Wetland	Stream Channel	River	Riverine – lower perennial; unconsolidated bottom	Federal and State	0.24	10256
B	Wetland	Wetland	Non-tidal wetland	Palustrine – deciduous scrub-shrub	Federal and State	0.33	14257
C	Wetland	Wetland	Non-tidal wetland	Palustrine – persistent emergent	Federal and State	0.59	25659
D	State Wetland	Wetland	n/a	n/a	State	0.19	8160
E	Non-Wetland	Marine	Marine	Sub/intertidal marine – sand unconsolidated bottom	Federal and State	4.52	196884
F	Riparian	Riparian Zone	Riparian Zone	n/a	State	0.23	9845
G	Non-Wetland	Stream Channel	Stream Channel	n/a – upland, ephemeral stream	Federal and State	0.10	4250
TOTAL						**7.16**	311341

This report is subject to verification by the United States Army Corps of Engineers, Regional Water Quality Control Board, and the California Coastal Commission.

6 GLOSSARY OF TERMS

Most terms derived from U.S. Army Corps of Engineers (USACE 2021).

Ephemeral Stream: An ephemeral stream has flowing water only during and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

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

Intermittent Stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Mean High Water Line/Mark (MHWL) The line on the shore in tidal areas established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area.

Navigable Waters of the United States: Those waters of the United States that are subject to the ebb and flow of the tide shoreward to the mean high water mark and/or are presently used, or have been used in the past, or may be susceptible to use in the future to transport interstate or foreign commerce.

Non-tidal Wetland: A non-tidal wetland is a wetland (i.e., a water of the U.S.) that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open Water: An area that, during a year with normal patterns of precipitation, has standing or flowing water for sufficient duration to establish an ordinary high water mark. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. The term “open water” includes rivers, streams, lakes, and ponds. For the purposes of the NWPs, this term does not include ephemeral waters.

Ordinary High Water Mark (OHWM): The line on the shore in non-tidal areas established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area.

Perennial Stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Stream Bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Tidal Waters: The terms *tidal waters* and *waters subject to the ebb and flow of the tide* mean those waters that rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters and waters subject to the ebb and flow of the tide end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by hydrologic, wind, or other effects.

Waters of the United States:

(1) The territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide;

(2) Tributaries;

(3) Lakes and ponds, and impoundments of jurisdictional waters; and

(4) Adjacent wetlands.

Wetlands: Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

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8 ATTACHMENT

- **Attachment A. Wetland Determination Data Forms**

ATTACHMENT A. WETLAND DETERMINATION DATA FORMS

A United States Army Corps of Engineers, Wetland Determination Data Form (2008 Arid West Supplement Version 2.0) was completed in the field for two sampling sites. The forms included here are copies of forms written in the field. The original forms are on file in our office.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Honda Canyon City/County: VAFB Sampling Date: 2-20-18
Applicant/Owner: UPRR State: CA Sampling Point: 1
Investigator(s): K. Anderson, J. Tilligkeit Section, Township, Range: 7N 34W
Landform (hillslope, terrace, etc.): canyon Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): LRRC Lat: 34.607898 Long: -120.635069 Datum: WGS84
Soil Map Unit Name: none - secured site NWI classification: Estuarine/Marine Deepwater
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No + (If no, explain in Remarks.)
Are Vegetation —, Soil —, or Hydrology — significantly disturbed? Are "Normal Circumstances" present? Yes ____ No +
Are Vegetation +, Soil —, or Hydrology + naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes + No ____	**Is the Sampled Area within a Wetland?** Yes ____ No +
Hydric Soil Present?	Yes ____ No +	
Wetland Hydrology Present?	Yes + No ____	

Remarks:
drought + culverts

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10x10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	20	Y	FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10x10m)			
1. Baccharis salicifolia	20	Y	FAC
2. Salix lasiolepis	10	Y	FACW
3. Ceanothus thyrsiflorus	5	N	NL
4.			
5.			
	35	= Total Cover	
Herb Stratum (Plot size: 10x10m)			
1. Salix lasiolepis	3	Y	FACW
2. Arundo donax	3	Y	FACW
3. Veronica americana	1	N	OBL
4. Baccharis salicifolia	5	Y	FAC
5. Rumex crispus	1	N	FAC
6.			
7.			
8.			
	13	= Total Cover	
Woody Vine Stratum (Plot size: 10x10m)			
1. Rubus ursinus	15	Y	FAC
2.			
	15	= Total Cover	

% Bare Ground in Herb Stratum 80 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)
Total Number of Dominant Species Across All Strata: 7 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
+ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes + No ____

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/2	100					S	sandy w/cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- — Histosol (A1)
- — Histic Epipedon (A2)
- — Black Histic (A3)
- — Hydrogen Sulfide (A4)
- — Stratified Layers (A5) (**LRR C**)
- — 1 cm Muck (A9) (**LRR D**)
- — Depleted Below Dark Surface (A11)
- — Thick Dark Surface (A12)
- — Sandy Mucky Mineral (S1)
- — Sandy Gleyed Matrix (S4)
- — Sandy Redox (S5)
- — Stripped Matrix (S6)
- — Loamy Mucky Mineral (F1)
- — Loamy Gleyed Matrix (F2)
- — Depleted Matrix (F3)
- — Redox Dark Surface (F6)
- — Depleted Dark Surface (F7)
- — Redox Depressions (F8)
- — Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- — 1 cm Muck (A9) (**LRR C**)
- — 2 cm Muck (A10) (**LRR B**)
- — Reduced Vertic (F18)
- — Red Parent Material (TF2)
- — Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): >12 inches

Hydric Soil Present? Yes ____ No +

Remarks:

Trace redox stains on cobbles deep in pit. Soil moist near surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- — Surface Water (A1)
- — High Water Table (A2)
- — Saturation (A3)
- + Water Marks (B1) (**Nonriverine**)
- + Sediment Deposits (B2) (**Nonriverine**)
- + Drift Deposits (B3) (**Nonriverine**)
- — Surface Soil Cracks (B6)
- + Inundation Visible on Aerial Imagery (B7)
- + Water-Stained Leaves (B9)
- — Salt Crust (B11)
- — Biotic Crust (B12)
- — Aquatic Invertebrates (B13)
- — Hydrogen Sulfide Odor (C1)
- — Oxidized Rhizospheres along Living Roots (C3)
- — Presence of Reduced Iron (C4)
- — Recent Iron Reduction in Tilled Soils (C6)
- — Thin Muck Surface (C7)
- — Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- — Water Marks (B1) (**Riverine**)
- — Sediment Deposits (B2) (**Riverine**)
- — Drift Deposits (B3) (**Riverine**)
- + Drainage Patterns (B10)
- — Dry-Season Water Table (C2)
- — Crayfish Burrows (C8)
- + Saturation Visible on Aerial Imagery (C9)
- — Shallow Aquitard (D3)
- + FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No + Depth (inches): >12"

Water Table Present? Yes ____ No + Depth (inches): >12"

Saturation Present? (includes capillary fringe) Yes ____ No + Depth (inches): >12"

Wetland Hydrology Present? Yes + No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

In flow path of southern culvert drainage. Ok @ time of sampling. Mostly unvegetated bank w/ Salix sprouting adjacent and canopy overhead.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Honda Canyon City/County: VAFB Sampling Date: 2-20-18
Applicant/Owner: UPRR State: CA Sampling Point: 2
Investigator(s): K. Anderson, J. Tilligkeit Section, Township, Range: 7N 34W
Landform (hillslope, terrace, etc.): Terrace, bench Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): LRR C Lat: 34.608253 Long: -120.635576 Datum: WGS84
Soil Map Unit Name: none NWI classification: Estuarine Marine Wetland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No + (If no, explain in Remarks.)
Are Vegetation –, Soil –, or Hydrology – significantly disturbed? Are "Normal Circumstances" present? Yes ____ No +
Are Vegetation +, Soil –, or Hydrology + naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes + No ____	**Is the Sampled Area within a Wetland?** Yes + No ____
Hydric Soil Present?	Yes + No ____	
Wetland Hydrology Present?	Yes + No ____	

Remarks:
Sand bank/bench in canyon, drought year

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: n/a)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 5'x5')			
1. Salix lasiolepis	70	Y	FACW
2. Baccharis pilularis	10	N	NL
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: 5'x5')			
1. Carpobrotus sp.	15	Y	NL
2. Hemizonia fasciculata	2	N	FAC
3. Ambrosia chamissonis	4	N	NL
4.			
5.			
6.			
7.			
8.			
	21 = Total Cover		
Woody Vine Stratum (Plot size: n/a)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 70	x 2 = 140
FAC species 2	x 3 = 6
FACU species 0	x 4 = 0
UPL species 29	x 5 = 145
Column Totals: 101 (A)	291 (B)

Prevalence Index = B/A = 2.88

Hydrophytic Vegetation Indicators:
– Dominance Test is >50%
+ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes + No ____

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR3/3	90					LS	
	10YR2/1	10						organic material
6-10	10YR3/3	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- + Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): >10 inches

Hydric Soil Present? Yes + No ___

Remarks:

stratified layers of organic material approximately ½ cm thick

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- + Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- + Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes + No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Honda Canyon City/County: VAFB Sampling Date: 2-20-18
Applicant/Owner: UPRR State: CA Sampling Point: 3
Investigator(s): K. Anderson, J. Tillinghast Section, Township, Range: 7N 34W
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): LRR C Lat: Long: Datum: WGS84
Soil Map Unit Name: None NWI classification: Estuarine Marine Wetland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)
Are Vegetation –, Soil –, or Hydrology – significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X
Are Vegetation +, Soil –, or Hydrology + naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes X No ____	

Remarks:
In secondary, high flow channel

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: n/a)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1. Baccharis pilularis	2	Y	NL
2.			
3.			
4.			
5.			
	2 = Total Cover		
Herb Stratum (Plot size: 10')			
1. Solanum douglasii	20	Y	FAC
2. Jaumea carnosa	40	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: n/a)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
+ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Thatch of Hschdeldia incana, Foeniculum vulgare, Rubus ursinus, & Polypogon monspeliensis

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					SL	
6-12	10YR 3/2	100					SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): >12 in

Hydric Soil Present? Yes ___ No X

Remarks:

Some OM decomposing in place but no stratification

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- + Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- + Salt Crust (B11)
- + Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): >12

Water Table Present? Yes ___ No ✓ Depth (inches): >12

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): >12

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Honda Canyon City/County: VAFB Sampling Date: 2-20-15
Applicant/Owner: UPRR State: CA Sampling Point: 4
Investigator(s): K. Anderson, J. Tillig Section, Township, Range: 7N 34W
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 1-2
Subregion (LRR): LRR C Lat: Long: Datum: WGS84
Soil Map Unit Name: None NWI classification: Estuarine & Marine Wetland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)
Are Vegetation —, Soil —, or Hydrology — significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X
Are Vegetation +, Soil —, or Hydrology + naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes + No ____	**Is the Sampled Area within a Wetland?** Yes + No ____
Hydric Soil Present?	Yes + No ____	
Wetland Hydrology Present?	Yes + No ____	

Remarks:
Drought year

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: n/a)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: n/a)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 10x10')			
1. Jaumea carnosa	40	Y	OBL
2. Frankenia salina	50	Y	FACW
3. Distichlis spicata	30	Y	FAC
4. Cardous pycnocephalus	3	N	NL
5. Helianthus annuus	10	N	FACU
6. Carpobrotus sp.	10	N	NL
7. Schoenoplectus pungens var. longispicatus	5	N	OBL
8.			
	148 = Total Cover		
Woody Vine Stratum (Plot size: n/a)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
+ Dominance Test is >50%
— Prevalence Index is ≤3.0[1]
— Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes + No ____

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	90	10YR 3/6	3	RM	M	C	
			10YR 5/2	5?	D	M	C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- + Depleted Matrix (F3)
- + Redox Dark Surface (F6)
- + Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none

Depth (inches): >12

Hydric Soil Present? Yes + No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- + Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- + FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No + Depth (inches): >12

Water Table Present? Yes ___ No + Depth (inches): >12

Saturation Present? (includes capillary fringe) Yes ___ No + Depth (inches): >12

Wetland Hydrology Present? Yes + No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Large logs and branches deposited as drift

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Honda City/County: Santa Barbara County (VSFB) Sampling Date: 10/01/2021

Applicant/Owner: UPRR State: CA Sampling Point: 1 (2021 #5)

Investigator(s): LynneDee Althouse, Adam Searcy Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): <2%

Subregion (LRR): C Lat: 34.608234 Long: -120.636180 Datum: WGS84

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ____	No ✔	

Remarks:

Scattered wood debris under thick vegetation on flood plain

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 2m^2)			
1. Jaumea carnosa	80		OBL
2. Bolboschoenus maritimus subsp. paludosus	10		OBL
3. Carpobrotus edulis	5		UPL
4. Heliotropium curassavicum	<1		FACU
5. Ambrosia chamissonis	<1		NL
6. Astragalus nuttallii var. nuttallii	<1		NL
7.			
8.			
	98 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Deeply rooted wetland vegetation on sandy floodplain.

SOIL

Sampling Point: 1 (2021 #5)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
15	7.5 YR 4/2	100	0				sand	
18+	7.5 YR 4/2	100	0				sand	wet/moist sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Sand moist at depth. Plants deeply rooted. No redox detected.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Flood plain above Honda Creek.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Honda City/County: Santa Barbara County (VSFB) Sampling Date: 10/01/2021

Applicant/Owner: UPRR State: CA Sampling Point: 2 (2021 #6)

Investigator(s): LynneDee Althouse, Adam Searcy Section, Township, Range: T 7N, R 34W

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): <2%

Subregion (LRR): C Lat: 34.608308 Long: -120.635514 Datum: WGS84

Soil Map Unit Name: Tangair loamy sand NWI classification: riverine - intermittent re

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Salix lasiolepis	10		FACW
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 2m^2)			
1. Melilotus albus	20	Y	FACU
2. Polypogon monspeliensis	2	y	FACW
3. Polypogon viridis	2	y	FACW
4. Sonchus asper	2	y	FAC
5. Cotula coronopifolia and Trace of Jaumea carnos	2	y	OBL
6. Epilobium cliliatum	2	y	FACW
7. Rumex crispus	T	7	FAC
8. Chenopodium muale	T	N	FACU
	30 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	6	x 2 =	12
FAC species	2	x 3 =	36
FACU species	T	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	10 (A)		50 (B)

Prevalence Index = B/A = 5

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Juncus xiphioides (collected) and
a few Isolepis cernua

SOIL

Sampling Point: 2 (2021 #6)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5 YR 4/3	100	0	0			coarse san	sand and gravel <3cm; abundant
6-14	7.5 YR 4/2	100	0	9			sand	hit a large rock at 14 inches. grav

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ✔ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

No soil structure in stream bed. Gravelly structure may maintain oxygen below the surface. When I brought back soil to look under a microscope, saw some evidence of coated sand grains.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ✔ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ✔ Inundation Visible on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ✔ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✔ Water Marks (B1) (**Riverine**)
- ✔ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ✔ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✔ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✔ No _____ Depth (inches): 14

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Soil very moist to almost saturated at 14 inches.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Honda City/County: Santa Barbara County (VSFB) Sampling Date: 10/01/2021

Applicant/Owner: UPRR State: CA Sampling Point: 3 (2021 #7)

Investigator(s): LynneDee Althouse, Adam Searcy Section, Township, Range: Township 7N, Ranch 34W

Landform (hillslope, terrace, etc.): flood terrace Local relief (concave, convex, none): concave Slope (%): <0.5

Subregion (LRR): C Lat: 34.60799 Long: -120.63564 Datum: WGS84

Soil Map Unit Name: Elder loam NWI classification: Estaurine emergent wet

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No _____	

Remarks:

Buried plastic at 15-18" (trash) indicates significant soil movement during past storm events.
Drought year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 2m down)			
1. Jaumea carnosa	95		OBL
2. Bolboschoenus maritimus ssp. paludosus	2		
3.			
4.			
5.			
6.			
7.			
8.			
	97 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum <5 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Jaumea carnosa is obligate wetland indicator.

SOIL

Sampling Point: 3 (2021 #7)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10"	10 YR4/2	100		0			sandy	
10-18"			10 YR 6/3	80			SCL	
	10 YR 2/1	20						buried organics

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ✔ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Buried snail at 15" with dark organic matter.
Stratified layers with chroma 2 or less < 15cm.
Polyvalue below surface - not dark surface

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ✔ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ___ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Low area near main creek channel.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Honda City/County: Santa Barbara County (VSFB) Sampling Date: 10/01/2021

Applicant/Owner: UPRR State: CA Sampling Point: 4 (2021 #8)

Investigator(s): LynneDee Althouse, Adam Searcy Section, Township, Range: T 7N, R 34W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <2%

Subregion (LRR): C Lat: 34.60779 Long: -120.63554 Datum: WGS84

Soil Map Unit Name: Elder loam NWI classification: riverine - terrace

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Scattered wood on upland soil forming near toe of south slope.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Artemisia californica	20		UPL
2. Baccharis pilularis	15		UPL
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: _____)			
1. Carpobrotus edulis	20	n	UPL
2. Baccharis glutinosa	10	n	FACW
3. Jaumea carnosa	T	Y	OBL
4. Frankenia salina	T	Y	FACW
5.			
6.			
7.			
8.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 =
FACW species 10	x 2 = 20
FAC species 0	x 3 =
FACU species 0	x 4 =
UPL species 55	x 5 = 275
Column Totals: 65 (A)	295 (B)

Prevalence Index = B/A = 295/65=4

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

This area is dominated by upland plants withe a few wetland indicators scattered among the upland species along a secondary flood channel.

SOIL

Sampling Point: 4 (2021 #8)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 4/2	100					sandy loar	abundant roots;
								weak structure
14-18	10 YR 5/3						sand	no structure

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

No surface organic matter.
Carpenter ant colony was disturbed while digging the sample pit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ✔ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✔ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ✔ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Secondary or tertiary flow path on flood plain

APPENDIX N. PLANTS & WILDLIFE DETECTED DURING PROJECT SURVEYS, BRIEF LIFE HISTORIES OF CERTAIN SPECIAL STATUS SPECIES

PLANT INVENTORY TABLE

Botanical surveys conducted between May 2018 and April 2022 identified 237 vascular plant taxa in the survey area.

Scientific Name	Common Name	Special Status	Origin
Ferns – 2 Species			
Azolla filiculoides	Mosquito fern	None	Native
Equisetum telmateia subsp. *braunii*	Giant horsetail	None	Native
Trees – 7 Species			
Acacia longifolia	Long-leaved acacia	None	Introduced
Eucalyptus globulus	Blue-gum	None	Introduced
Eucalyptus tereticornis	Forest red gum	None	Introduced
Hesperocyparis macrocarpa	Monterey cypress	None	Introduced
Myoporum laetum	Myoporum	None	Introduced
Populus trichocarpa	Black cottonwood	None	Native
Salix lasiolepis	Arroyo willow	None	Native
Shrubs – 27 Species			
Albizia lophantha	Stink bean	None	Introduced
Artemisia californica	Coastal sagebrush	None	Native
Atriplex lentiformis	Quailbush	None	Native
Baccharis pilularis subsp. *consanguinea*	Coyote brush	None	Native
Ceanothus thyrsiflorus var. *thyrsiflorus*	Blue blossom	None	Native
Diplacus aurantiacus	Sticky monkeyflower	None	Native
Encelia californica	California brittlebush	None	Native
Ericameria ericoides	Mock heather	None	Native
Eriogonum fasciculatum	California buckwheat	None	Native
Eriogonum parvifolium	Coastal buckwheat	None	Native
Eriophyllum confertiflorum	Golden yarrow	None	Native
Frangula californica	Coffeeberry	None	Native
Heteromeles arbutifolia	Toyon	None	Native
Isocoma menziesii var. *sedoides*	White flowered dune goldenbush	None	Native

Scientific Name	Common Name	Special Status	Origin
Isocoma menziesii var. *vernonioides*	Green leaved dune goldenbush	None	Native
Leptosyne gigantea	Giant coreopsis	None	Native
Lonicera involucrata var. *ledebourii*	Coast twinberry	None	Native
Lupinus arboreus	Bush lupine	None	Native
Lupinus chamissonis	Silver bush lupine	None	Native
Rhus integrifolia	Lemonade berry	None	Native
Ribes malvaceum var. *malvaceum*	Chaparral currant	None	Native
Rubus ursinus	California blackberry	None	Native
Salvia mellifera	Black sage	None	Native
Sambucus nigra subsp. *caerulea*	Blue elderberry	None	Native
Senecio blochmaniae	Blochman's ragwort	-/- CRPR 4.2 G3/S3	Native
Solanum umbelliferum	Blue-witch	None	Native
Toxicodendron diversilobum	Poison oak	None	Native
Forbs – 163 Species			
Abronia latifolia	Yellow sand verbena	None	Native
Abronia umbellata	Beach sand verbena	None	Native
Achillea millefolium	Yarrow	None	Native
Acmispon glaber var. *glaber*	Deerweed	None	Native
Acmispon heermannii var. *orbicularis*	Heermann's lotus	None	Native
Acmispon junceus	Rush lotus	None	Native
Acmispon maritimus var. *maritimus*	Coastal lotus	None	Native
Ambrosia chamissonis	Beach bursage	None	Native
Amsinckia spectabilis var. *spectabilis*	Seaside fiddleneck	None	Native
Apiastrum angustifolium	Mock parsley	None	Native
Apium graveolens	Celery	None	Introduced
Artemisia douglasiana	Mugwort	None	Native

Scientific Name	Common Name	Special Status	Origin
Astragalus nuttallii var. *nuttallii*	Nuttall''s milkvetch	-/- CRPR 4.2 G4T4/S4	Native
Atriplex leucophylla	Beach saltbush	None	Native
Atriplex prostrata	Spearscale	None	Introduced
Atriplex semibaccata	Australian saltbush	None	Introduced
Baccharis glutinosa	Salt marsh baccharis	None	Native
Bolboschoenus maritimus subsp. *paludosus*	Pacific bulrush	None	Native
Brassica nigra	Black mustard	None	Introduced
Cakile maritima	European searocket	None	Introduced
Calystegia macrostegia subsp. *cyclostegia*	Morning glory	None	Native
Camissoniopsis cheiranthifolia subsp. *cheiranthifolia*	Beach evening-primrose	None	Native
Camissoniopsis micrantha	Miniature suncup	None	Native
Cardionema ramosissimum	Sand mat	None	Native
Carduus pycnocephalus subsp. *pycnocephalus*	Italian thistle	None	Introduced
Carpobrotus chilensis	Sea fig	None	Introduced
Carpobrotus edulis	Freeway iceplant	None	Introduced
Centaurea melitensis	Tocolote	None	Introduced
Chenopodium album	Lamb's-quarters	None	Introduced
Chenopodium californicum	Pigweed	None	Native
Chenopodium murale	Pigweed	None	Introduced
Chorizanthe angustifolia	Narrow leaf spineflower	None	Native
Cirsium rhothophilum	Surf thistle	-/CT CRPR 1B.2 G1/S1	Native
Cirsium vulgare	Bull thistle	None	Introduced
Claytonia perfoliata	Miner's lettuce	None	Native
Clematis ligusticifolia	Virgin's bower	None	Native
Conicosia pugioniformis	Narrow-leaved ice plant	None	Introduced
Conium maculatum	Poison hemlock	None	Introduced
Corethrogyne filaginifolia	California aster	None	Native

Scientific Name	Common Name	Special Status	Origin
Cotula coronopifolia	Brass buttons	None	Introduced
Crassula connata	Pygmyweed	None	Native
Croton californicus	California croton	None	Native
Cryptantha clevelandii var. *florosa*	Coastal cryptantha	None	Native
Cryptantha leiocarpa	Popcorn flower	None	Native
Cryptantha micromeres	Small flowered cryptantha	None	Native
Cuscuta sp.	Dodder species	None	Native
Daucus pusillus	Rattlesnake weed	None	Native
Deinandra increscens subsp. *increscens*	Tarweed	None	Native
Descurainia pinnata	Western tansy mustard	None	Native
Dipsacus fullonum	Wild teasel	None	Introduced
Dudleya caespitosa	Sand lettuce	None	Native
Epilobium ciliatum	Willow herb	None	Native
Erigeron blochmaniae	Blochman's leafy daisy	-/- CRPR 1B.2 G2/S2	Native
Erigeron bonariensis	Asthma weed	None	Introduced
Erigeron canadensis	Common horseweed	None	Native
Eriophyllum multicaule	Many stemmed woolly sunflower	None	Native
Eriophyllum staechadifolium	Coastal golden yarrow	None	Native
Erodium botrys	Longbeak storksbill	None	Introduced
Erodium cicutarium	Redstem filaree	None	Introduced
Erodium moschatum	Filaree	None	Introduced
Erysimum suffrutescens	Suffrutescent wallflower	-/- CRPR 4.2 G3/S3	Native
Erythranthe grandis	Magnificent seep monkey flower	None	Native
Erythranthe guttata	Yellow monkey flower	None	Native
Eschscholzia californica	California poppy	None	Native
Eucrypta chrysanthemifolia	Spotted eucrypta	None	Native
Euphorbia crenulata	Chinesecaps	None	Native

Scientific Name	Common Name	Special Status	Origin
Extriplex californica	California orach	None	Native
Foeniculum vulgare	Fennel	None	Introduced
Frankenia salina	Alkali heath	None	Native
Galium aparine	Goose grass	None	Native
Gamochaeta ustulata	Featherweed	None	Native
Geranium dissectum	Geranium	None	Introduced
Helenium puberulum	Sneezeweed	None	Native
Helianthus annuus	Common sunflower	None	Native
Heliotropium curassavicum var. *oculatum*	Seaside heliotrope	None	Native
Helminthotheca echioides	Bristly ox-tongue	None	Introduced
Hesperocnide tenella	Western stinging nettle	None	Native
Heterotheca grandiflora	Telegraph weed	None	Native
Hirschfeldia incana	Wild mustard	None	Introduced
Hoita macrostachya	Leather root	None	Native
Hypochaeris glabra	Smooth cat's ear	None	Introduced
Isolepis cernua	Low bulrush	None	Native
Jaumea carnosa	Fleshy jaumea	None	Native
Juncus textilis	Basket rush	None	Native
Juncus xiphioides	Iris-leaved rush	None	Native
Lasthenia gracilis	Common goldfields	None	Native
Layia carnosa	Beach layia	FE/CE CRPR 1B.1 G2/S2	Native
Lepidium latifolium	Perennial pepperweed	None	Introduced
Lilium humboldtii subsp. *ocellatum*	Humboldt lily	-/- CRPR 4.2 G4T4?/S4?	Native
Lobularia maritima	Sweet alyssum	None	Introduced
Ludwigia sp.	Water primrose species	None	Introduced
Lupinus succulentus	Arroyo lupine	None	Native
Lysimachia arvensis	Scarlet pimpernel	None	Introduced
Malacothrix incana	Dandelion	-/- CRPR 4.3 G3G4/S3S4	Native

Scientific Name	Common Name	Special Status	Origin
Malva parviflora	Cheeseweed	None	Introduced
Marah fabacea	California man-root	None	Native
Medicago polymorpha	California burclover	None	Introduced
Melilotus albus	White sweet clover	None	Introduced
Melilotus indicus	Annual sweetclover	None	Introduced
Mesembryanthemum crystallinum	Crystalline ice plant	None	Introduced
Mesembryanthemum nodiflorum	Small flowered iceplant	None	Introduced
Monardella undulata	Curly leaved monardella	None	Native
Monardella villosa subsp. *obispoensis*	Coyote mint	None	Native
Mucronea californica	California spineflower	-/- CRPR 4.2 G3/S3	Native
Nasturtium officinale	Common watercress	None	Native
Nemophila menziesii	Baby blue-eyes	None	Native
Nuttallanthus texanus	Blue toadflax	None	Native
Oxalis pes-caprae	Bermuda buttercup	None	Introduced
Persicaria sp.	Smartweed sp.	None	Unknown
Phacelia distans	Phacelia	None	Native
Phacelia grandiflora	Giant flowered phacelia	None	Native
Phacelia ramosissima	Branching phacelia	None	Native
Phacelia viscida	Sticky phacelia	None	Native
Pholistoma auritum	Fiesta flower	None	Native
Plantago coronopus	Cut leaf plantain	None	Introduced
Plantago erecta	California plantain	None	Native
Plantago major	Broad-leaved plantain	None	Introduced
Plantago maritima	Seaside plantain	None	Native
Polycarpon tetraphyllum var. *tetraphyllum*	Four leaved allseed	None	Introduced
Polygonum aviculare subsp. *depressum*	Common knotweed	None	Introduced
Potentilla anserina subsp. *pacifica*	Coastal silverleaf	None	Native

Scientific Name	Common Name	Special Status	Origin
Pseudognaphalium biolettii	Two-color rabbit-tobacco	None	Native
Pseudognaphalium californicum	California everlasting	None	Native
Pseudognaphalium luteoalbum	Jersey cudweed	None	Introduced
Pseudognaphalium microcephalum	Wright's cudweed	None	Native
Pseudognaphalium ramosissimum	Pink cudwed	None	Native
Pseudognaphlium stramineum	Cotton batting plant	None	Native
Pterostegia drymarioides	Pterostegia	None	Native
Raphanus sativus	Wild radish	None	Introduced
Rorippa curvisiliqua	Water cress	None	Native
Rumex crispus	Curly dock	None	Introduced
Rumex fueginus	Golden dock	None	Native
Rumex transitorius	Willow dock	None	Native
Salicornia pacifica	Pacific swampfire	None	Native
Salsola tragus	Russian thistle	None	Introduced
Salvia spathacea	Hummingbird sage	None	Native
Sanicula crassicaulis	Sanicle	None	Native
Schoenoplectus pungens var. *longispicatus*	Common threesquare	None	Native
Scirpus microcarpus	Panicled rush	None	Native
Scrophularia atrata	Black-flowered figwort	-/- CRPR 1B.2 G2?/S2?	Native
Scrophularia californica	California figwort	None	Native
Senecio californicus	California butterweed	None	Native
Senecio vulgaris	Common groundsel	None	Introduced
Silybum marianum	Milk thistle	None	Introduced
Solanum douglasii	Nightshade	None	Native
Solanum xanti	Nightshade	None	Native
Solidago spathulata	Dune goldenrod	None	Native
Sonchus asper subsp. *asper*	Prickly sow-thistle	None	Introduced

Scientific Name	Common Name	Special Status	Origin
Sonchus oleraceus	Common sow thistle	None	Introduced
Spergularia bocconi	Boccone's sand spurry	None	Introduced
Spergularia macrotheca	Sticky sand spurry	None	Native
Spergularia rubra	Red sand spurrey	None	Introduced
Stachys bullata	Hedge nettle	None	Native
Stellaria media	Chickweed	None	Introduced
Symphyotrichum chilense	Pacific aster	None	Native
Tetragonia tetragonoides	New zealand spinach	None	Introduced
Thalictrum fendleri	Meadow rue	None	Native
Trifolium willdenovii	Tomcat clover	None	Native
Urtica dioica subsp. *holosericea*	Stinging nettle	None	Native
Venegasia carpesioides	Canyon sunflower	None	Native
Verbena lasiostachys	Verbena	None	Native
Veronica anagallis-aquatica	Water speedwell	None	Introduced
Xanthium strumarium	Cocklebur	None	Native
Grasses – 20 Species			
Ammophila arenaria	European beachgrass	None	Introduced
Arundo donax	Giant reed	None	Introduced
Avena fatua	Wild oat	None	Introduced
Bromus diandrus	Ripgut brome	None	Introduced
Bromus hordeaceus	Soft chess brome	None	Introduced
Bromus madritensis subsp. *rubens*	Red top brome	None	Introduced
Cortaderia jubata	Andean pampas grass	None	Introduced
Cortaderia selloana	Pampas grass	None	Introduced
Distichlis spicata	Saltgrass	None	Native
Ehrharta calycina	Veldt grass	None	Introduced
Elymus condensatus	Giant wild rye	None	Native
Festuca myuros	Rattail sixweeks grass	None	Introduced
Festuca octoflora	Sixweeks grass	None	Native
Hordeum murinum	Foxtail barley	None	Introduced
Parapholis incurva	Sickle grass	None	Introduced

Scientific Name	Common Name	Special Status	Origin
Pennisetum clandestinum	Kikuyu grass	None	Introduced
Pennisetum villosum	Feathertop	None	Introduced
Poa douglasii	Sand dune blue grass	None	Native
Polypogon monspeliensis	Annual beardgrass	None	Introduced
Polypogon viridis	Water beard grass	None	Introduced

WILDLIFE INVENTORY TABLE

Wildlife surveys conducted between May 2018 and April 2022 identified 69 amphibian, reptile, bird, and mammal taxa within the survey area:

Scientific Name	Common Name	Special Status	Habitat Type
Amphibians – 2 Species			
Pseudacris hypochondriaca subsp. *hypochondriaca*	Baja California Treefrog	None	Many habitats near water
Rana draytonii	California Red-legged Frog	FT, SSC	Streams, creeks, and ponds
Reptiles – 4 Species			
Elgaria multicarinata subsp. *webbii*	San Diego Alligator Lizard	None	Riparian, chaparral and woodlandsVariety of habitats
Pituophis catenifer subsp. *annectens*	San Diego Gopher Snake	None	Woodland, grassland, rural
Sceloporus occidentalis subsp. *bocourtii*	Coast Range Fence Lizard	None	Wide range; variety of habitats
Thamnophis hammondii	Two-striped Garter Snake	SSC	Rocky streams, ponds, wetlands.
Birds – 58 Species			
Anthus rubescens	American Pipit	None	Fields, beaches, etc.
Aphelocoma californica	California Scrub-jay	None	Oak, riparian woodlands
Ardea herodias	Great Blue Heron	SA (rookery sites)	Water habitats, grasslands
Bubo virginianus	Great Horned Owl	None	Woodland, grassland
Buteo jamaicensis	Red-tailed Hawk	None	Open, semi-open country
Calidris alba	Sanderling	None	Coastal shorelines and mudflats
Calidris mauri	Western Sandpiper	None	Shorelines and mudflats
Callipepla californica	California Quail	None	Shrubby habitats
Calypte anna	Anna’s Hummingbird	None	Many habitats
Cathartes aura	Turkey Vulture	None	Open country
Catharus guttatus	Hermit Thrush	None	Woodland and brush
Catharus ustulatus	Swainson's Thrush	None	Mixed woodlands
Cepphus columba	Pigeon Guillemot	None	Seacliffs, open ocean
Chamaea fasciata	Wrentit	None	Riparian, chaparral

Scientific Name	Common Name	Special Status	Habitat Type
Colaptes auratus	Northern Flicker	None	Woodlands
Contopus sordidulus	Western Wood Pewee	None	Riparian woodlands
Corvus corax	Common Raven	None	Riparian, chaparral and woodlandsVariety of habitats
Empidonax difficilis	Pacific-slope Flycatcher	None	Riparian, oak woodlands
Eremophila alpestris subsp. *actia*	California Horned Lark	SA (nesting)	Grassland, oak savanna
Falco peregrinus subsp. *anatum*	American Peregrine Falcon	FP	Open country, nests on cliffs
Falco sparverius	American Kestrel	None	Open, semi-open country
Geothlypis trichas	Common Yellowthroat	None	Marshes, streamsides
Haematopus bachmani	Black Oystercatcher	None	Rocky seashores
Haemorhous mexicanus	House Finch	None	Riparian, grasslands, chaparral, woodlands, urban
Larus californicus	California Gull	SA (nesting colonies)	Beach, urban areas
Larus occidentalis	Western Gull	None	Beach, urban areas
Melanitta americana	Black Scoter	None	Coastal saltwater
Melanitta perspicillata	Surf Scoter	None	Coastal saltwater
Melospiza lincolnii	Lincoln's sparrow	None	Fields, forest edges, and other areas with thickets
Melospiza melodia	Song Sparrow	None	Oak, riparian woodland
Melozone crissalis	California Towhee	None	Chaparral scrub, shrubby urban areas
Numenius americanus	Long-billed Curlew	SA (nesting)	Winters in meadows, fields. Nests in northeast U.S. and Great Plains.
Numenius phaeopus	Whimbrel	None	Beaches
Oreothlypis celata	Orange-crowned warbler	None	Oak and riparian woodlands
Pelicanus occidentalis subsp. *californicus*	California Brown Pelican	FP (nesting colonies and communal roosts)	Coastal areas near the ocean
Phalacrocorax auritus	Double-crested Cormorant	SA (nesting colonies)	Ponds, lakes, lagoons

Scientific Name	Common Name	Special Status	Habitat Type
Phalacrocorax penicillatus	Brandt's Cormorant	None	Coastal areas near and in the ocean
Picoides nuttallii	Nuttall's Woodpecker	None	Oak, riparian woodlands
Pipilo maculatus	Spotted Towhee	None	Dense brushy areas
Psaltriparus minimus	Bushtit	None	Woodlands, chaparral
Regulus calendula	Ruby-crowned Kinglet	None	Oak, riparian woodlands
Salpinctes obsoletus	Rock Wren	None	Rocky habitats
Sayornis nigricans	Black Phoebe	None	Near water in natural and urban settings
Sayornis saya	Say's Phoebe	None	Open country, grassland
Setophaga coronata	Yellow-rumped Warbler	None	Coniferous and mixed woodland (breeding); shrubby areas and parks (winter)
Setophaga coronata	Yellow-rumped Warbler	None	Coniferous and mixed woodland (breeding); shrubby areas and parks (winter)
Sialia mexicana	Western Bluebird	None	Woodland near open areas
Spinus lawrencei	Lawrence's Goldfinch	SA (nesting)	Oak woodlands, savanna
Spinus pinus	Pine Siskin	None	Coniferous and mixed woodland (breeding);diverse wooded areas and parks (winter)
Spinus psaltria	Lesser Goldfinch	None	Riparian, oak woodlands
Streptopelia decaocto	Eurasian Collared Dove	None	Urban areas
Sturnella neglecta	Western Meadowlark	None	Open habitats, grasslands
Tachycineta bicolor	Tree Swallow	None	Oak, riparian woodlands, open areas near water
Thryomanes bewickii	Bewick's Wren	None	Riparian woodland, scrub
Toxostoma redivivum	California Thrasher	None	Chaparral, coastal scrub
Troglodytes aedon	House Wren	None	Shrubby areas
Wilsonia pusilla	Wilson's Warbler	None	Oak, riparian woodlands
Zonotrichia leucophrys	White-crowned Sparrow	None	Oak, riparian woodlandsOpen or shrubby habitats, meadows, forest edges
Mammals – 5 Species			
Canis latrans	Coyote	None	Open woodlands, brushy areas, wide ranging.

Scientific Name	Common Name	Special Status	Habitat Type
Neotoma macrotis	Big-eared Woodrat	None	Wooded habitats
Odocoileus hemionus	Mule Deer	None	Many habitats
Otospermophilus beecheyi	California Ground Squirrel	None	Grasslands
Thomomys bottae	Valley Pocket Gopher	None	Variety of habitats

BRIEF LIFE HISTORY OF SPECIAL STATUS PLANT SPECIES

Twenty-two special status plant species are discussed below and are either present or have a high or low potential to occur within the Action Area.

1. ***Abronia maritima*** (red sand-verbena): This perennial herb occurs from California's south-central coast to southern Baja California in coastal strand and dune communities below 100 meters amsl (Jepson 2021). It may be found blooming from February through November (CNPS 2021b; Jepson 2021). Red sand-verbena occurs in the biological survey area near Surf (CCH 2021). There is little appropriate habitat within the Action Area (shoreline sand dunes on the immediate coast) and red sand-verbena has a low potential to occur.
2. ***Astragalus nuttallii* var. *nuttallii* (ocean bluff milk-vetch) CRPR 4.2**: This perennial herb occurs from Marin County south to Santa Barbara County in coastal bluff scrub and coastal dune habitats in rocky or sandy areas up to 120 meters amsl (Jepson 2021). It may be found blooming throughout the year (CNPS 2021b; Jepson 2021). Ocean bluff milk-vetch was detected at many localities on coastal bluffs and stabilized dunes within the Action Area.
3. ***Atriplex coulteri* (Coulter's saltbush) CRPR 1B.2**: This perennial herb or subshrub occurs from San Luis Obispo County south to Baja California in bluff scrub, coastal scrub, and dune habitats on alkaline, clay, or sandy soils up to 500 meters amsl (Jepson 2021). It may be found blooming from March through October (CNPS 2021b; Jepson 2021). The nearest record is approximately one mile south of the Proposed Action Area near Point Arguello (CCH 2021). Coulter's saltbush has a low potential to occur within the Proposed Action Area.
4. ***Ceanothus impressus* var. *impressus* (Santa Barbara ceanothus) CRPR 1B.2**: This perennial shrub occurs in western Santa Barbara County on sandy substrates up to 320 meters amsl (Jepson 2021). It may be found blooming from February through April (CNPS 2021b; Jepson 2021). The nearest occurrence is 0.2 mile east of the southern portion of the Proposed Action Area (CDFW 2021b). Santa Barbara ceanothus has a low potential to occur within the Proposed Action Area.
5. ***Chenopodium littoreum* (coastal goosefoot) CRPR 1B.2**: This annual herb occurs in San Luis Obispo and Santa Barbara Counties in dunes and sandy soils up to 30 meters amsl (Jepson 2021). It may be found blooming from April through October (CNPS 2021b; Jepson 2021). A single coastal goosefoot was detected near the southern end of Honda Station in the Action Area.
6. ***Cirsium rhothophilum* (surf thistle) CESA Threatened, CRPR 1B.2**: Surf thistle has historically occurred near the mouth of the unnamed drainage where the beach access road reaches Honda Beach. The species is present on dunes on the northwest side of the mouth of Honda Canyon and atop the coastal terrace west of Honda Station immediately west of the Action Area. Project surveys did not detect surf thistle within areas of proposed impacts, but the species has a high potential to occur in sandy habitats within the Action Area.
7. ***Dichondra occidentalis* (western dichondra) CRPR 4.2**: This perennial herb occurs in coastal Central and Southern California in chaparral and coastal scrub up to 520 meters amsl (Jepson 2021). It may be found blooming from March through October (CNPS 2021b; Jepson 2021). The nearest occurrence is 0.5 mile east of the Action Area (CCH 2021). Suitable habitat exists and western dichondra has a low potential to occur within the Action Area.

8. ***Dithyrea maritima*** **(beach spectaclepod) CESA Threatened, CRPR 1B.1**: This perennial rhizomatous herb occurs in San Luis Obispo County, Santa Barbara County (and formerly Los Angeles County), the northern Channel Islands, and in Baja California on coastal dunes and sandy coastal scrub up to 50 meters amsl (Jepson 2021). It typically blooms between March and August (CNPS 2021b; Jepson 2021). The nearest records are in the vicinity of Surf Station near the northern end of the Action Area (CCH 2021). The species has a low potential to occur within the Action Area. Beach spectaclepod was not detected in the Action Area during project surveys.

9. ***Erigeron blochmaniae*** **(Blochman's leafy daisy) CRPR 1B.2**: This perennial herb occurs in San Luis Obispo and Santa Barbara Counties in coastal dune and coastal scrub habitats up to 500 meters amsl (Jepson 2021). It may be found blooming from June through October (CNPS 2021b; Jepson 2021). Blochman's leafy daisy was detected in sandy coastal scrub near Honda Station, Surf Station, and along the UPRR ROW in the Action Area.

10. ***Erigeron sanctarum*** **(saint's daisy) CRPR 4.2**: This perennial herb occurs from Monterey County to Santa Barbara County in coastal scrub and woodland habitats up to 45 meters amsl (Jepson 2021). It may be found blooming from March through June (CNPS 2021b; Jepson 2021). The nearest occurrences are 1.3 and 1.75 miles east of the Proposed Action Area (CCH 2021). Saint's daisy has a low potential to occur within the Proposed Action Area.

11. ***Erysimum suffrutescens*** **(suffrutescent wallflower) CRPR 4.2**: This perennial subshrub occurs from San Luis Obispo County to Los Angeles County in coastal dune, scrub, and chaparral habitats up to 150 meters amsl (Jepson 2021). It may be found blooming from December through August (CNPS 2021b; Jepson 2021). Suffrutescent wallflower was detected in coastal scrub along the UPRR ROW in the Action Area.

12. ***Horkelia cuneata*** **var.** ***sericea*** **(Kellogg's horkelia) CRPR 1B.1**: This perennial herb occurs from Marin County south to Santa Barbara County in sandy or gravelly substrates in coastal habitats up to 200 meters amsl (Jepson 2021). It may be found blooming from April through September (CNPS 2021b; Jepson 2021). The nearest record is approximately 1.4 miles west of the Proposed Action Area (CDFW 2021b). Stabilized sandy soils in coastal scrub are potentially suitable for this taxon and Kellogg's horkelia has a low potential to occur within the Proposed Action Area.

13. ***Juglans californica*** **(California walnut) CRPR 4.2**: This perennial deciduous tree occurs Southwestern California in coastal scrub, riparian woodland, cismontane woodland, and chaparral up to 900 meters amsl (Jepson 2021). It may be found blooming from March through August (CNPS 2021b; Jepson 2021). The nearest record is approximately 1 mile east of the Proposed Action Area (CCH 2021). Suitable habitat exists and California walnut has a low potential to occur within the Proposed Action Area.

14. ***Layia carnosa*** **(beach layia) ESA Threatened, CESA Endangered, CRPR 1B.1**: Beach layia was listed as endangered when the BA was submitted to the USFWS but was reclassified as threatened in spring of 2022 (87 FR 18722) and is treated as such here. There are two occurrences within the Action Area, EO 1 and EO 28. EO 1, immediately northwest of Honda Bridge, is the southernmost occurrence of the species (CDFW 2022b). Three individuals were found at this occurrence in 2009 (SBBG 2009). Subsequent surveys found 13 individuals in 2010 and none in 2012-2019 (SAIC 2012; MSRS 2020). EO 28 is near the Fiber Relocation portion of the Action Area and where beach layia has occurred on the UPRR ROW in the past.

Beach layia has been found at EO 28 every year since 2010 with the population fluctuating greatly depending on rainfall. Survey high counts were 2,959 in 2010 and 3,145 in 2019 and low counts were 27 in 2012 and 53 in 2014 (MSRS 2020). Sandy coastal dune habitats elsewhere in the Action Area are suitable for this species and this species is highly likely to occur away from known occurrences. Qualified botanists conducted appropriately timed surveys at known occurrences and within suitable habitat within the Action Area in 2018, 2021, and 2022. Beach layia was not detected within the Action Area at EO 1 or the portion of EO 28 that overlaps the Action Area. The species was found in small numbers (maximum of 30 in 2022) in vegetative, flowering, and fruiting condition during 2021 and 2022 surveys in the western portion of EO 28 on VSFB property west of the Action Area.

15. ***Lilium humboldtii*** **subsp.** ***ocellatum*** **(ocellated Humboldt lily) CRPR 4.2**: This perennial bulbiferous herb occurs from Santa Barbara County to San Diego County in chaparral, cismontane woodland, coastal scrub, and riparian woodland up to 1800 meters amsl (Jepson 2021). It may be found blooming from March through August (CNPS 2021b; Jepson 2021). Ocellated Humboldt lily was detected in Honda Canyon within the Action Area.

16. ***Malacothrix incana*** **(dunedelion) CRPR 4.3**: This perennial herb occurs on the central coast and Channel Islands in coastal sand dunes and coastal scrub below 35 meters amsl (Jepson 2021) and may be found blooming throughout the year (CNPS 2021b; Jepson 2021). Dunedelion was detected on sandy substrates along the UPRR ROW in the Action Area.

17. ***Monardella sinuata*** **subsp.** ***sinuata*** **(southern curly-leaved monardella) CRPR 1B.2**: This annual herb occurs in San Luis Obispo and Santa Barbara Counties in sandy soils of coastal dunes and coastal scrub up to 300 meters amsl (Jepson 2021). It may be found blooming from April through September (CNPS 2021b; Jepson 2021). The nearest record is at the northern end of the Proposed Action Area near Surf (CDFW 2021b). Potentially suitable sandy scrub habitat is present and southern curly-leaved monardella has a high potential to occur within the Action Area.

18. ***Monardella undulata*** **subsp.** ***crispa*** **(crisp monardella) CRPR 1B.2**: This perennial herb occurs in San Luis Obispo and Santa Barbara Counties in coastal dune and scrub habitats up to 100 meters amsl (Jepson 2021). It may be found blooming from April through December (CNPS 2021b; Jepson 2021). Crisp monardella was detected on sandy substrates along the UPRR ROW in the Action Area.

19. ***Monardella undulata*** **subsp.** ***undulata*** **(San Luis Obispo monardella) CRPR 1B.2**: This perennial herb occurs in San Luis Obispo and Santa Barbara Counties in coastal dune and scrub habitats up to 200 meters amsl (Jepson 2021). It may be found blooming from April through September (CNPS 2021b; Jepson 2021). San Luis Obispo monardella was detected on sandy soils along the UPRR ROW within the Action Area.

20. ***Mucronea californica*** **(California spineflower) CRPR 4.2**: This annual herb occurs from Monterey County to San Diego County in sandy soils in grassland, coastal scrub, dune, woodland, and chaparral habitats up to 1,400 meters amsl (Jepson 2021). It may be found blooming from March through August (CNPS 2021b; Jepson 2021). California spineflower was detected on sandy soils along the UPRR ROW within the Action Area.

21. ***Scrophularia atrata*** **(black-flowered figwort) CRPR 1B.2**: This perennial herb occurs in Santa Barbara and San Luis Obispo Counties in coastal dune, scrub, riparian scrub, chaparral,

and closed-cone coniferous forest habitats up to 400 meters amsl (Jepson 2021). It may be found blooming from March through July (CNPS 2021b; Jepson 2021). Recent records at south end of the Action Area; suitable habitat is present elsewhere.

22. ***Senecio blochmaniae*** **(Blochman's ragwort) CRPR 4.2**: This perennial occurs in San Luis Obispo and Santa Barbara Counties in coastal dunes up to 150 meters amsl (Jepson 2021). It may be found blooming from May through November (CNPS 2021b; Jepson 2021). Blochman's ragwort was detected on coastal bluffs and stabilized dunes within the Action Area.

BRIEF LIFE HISTORY OF SPECIAL STATUS ANIMAL SPECIES

Seventeen special status animal species are discussed below and are either present or have a high or low potential to occur within the Action Area.

1. ***Rana draytonii* (CA red-legged frog) ESA Threatened, CDFW Species of Special Concern, G2G3/S2S3**: The CA red-legged frog was once quite common throughout the state, occurring from sea level to elevations of about 5,000 feet but has been extirpated from approximately 70 percent of its former range (USFWS 2002). It now occurs primarily below 3,500 feet in coastal drainages of central CA from Marin County south to Ventura County (USFWS 2002). USFWS-permitted biologists conducted protocol-level surveys within the Proposed Action Area in 2021 (Appendix A) and detected egg masses, larvae, and adults from the bridge to the Coast Road culverts. Past surveyors have found CA red-legged frogs from the Honda Bridge to the Coast Road culverts and upstream of Coast Road (VSFB 2021a). The CA red-legged frog occurs within the Action Area.

2. ***Actinemys pallida* (southwestern pond turtle) ESA Proposed Threatened, CDFW SSC, G3G4/S3**: The southwestern pond turtle was historically treated as one of two subspecies (*Emys marmorata pallida*) of the western pond turtle (*Emys marmorata s.l.*) described by Seeliger (1945). Spinks et al. (2014) documented genetic differentiation between two populations that roughly align with Seeliger's morphologically defined subspecies boundaries. Their results support recognition of two species, the northwestern pond turtle (*Emys marmorata*) and the southwestern pond turtle (*Emys pallida*). While their treatment was not immediately adopted by all authorities, past threat assessments have treated the two subspecies separately (e.g., Jennings and Hayes 1994; Thomson et al. 2016). The current ESA listing proposal adopts the two-species treatment with both species being considered for listing (Shaffer et al. 2019). While the southwestern pond turtle (*Emys pallida*) is the taxon present on VSFB, much of the natural history studies cited herein apply to the western pond turtle.

   Western pond turtles are small to medium sized turtles with adults attaining carapace lengths up to 210 mm (Holland 1994; Stebbins 2003). Overall coloration, which generally darkens with age, may be yellowish, olive, brownish, or blackish or a mix of these colors (Holland 1994). Carapace shields may be un-patterned but generally have dark radiating lines (Stebbins 2003). Holland (1994) details differences in structure and coloration of males and females. The western pond turtle may be found in a variety of freshwater habitats including ponds, lakes, marshes, brackish lagoons, rivers, and streams with adequate pools (Reese and Welsh 1997; Pilliod et al. 2013; Thomson et al. 2016). Plentiful basking sites are required, and these may include logs, flattened reeds, rocks, and muddy banks (Holland 1994). Basking sites must be near suitable cover such as submerged rocks or logs, cut banks, or overhanging vegetation (Holland 1994). Upland areas are required for nesting and overwintering, and western pond turtles may spend a significant portion of the year in terrestrial habitats (Ultsch 2006; Pilliod et al. 2013; Thomson et al. 2016). Terrestrial overwintering sites are usually within 100 meters of water but may be as far as 500 meters (Holland 1994). Egg laying typically occurs from April through July when females excavate nests in upland habitat (Holland 1994; Scott et al. 2008). Eggs hatch in fall and turtles may disperse soon after or overwinter in the nest and disperse the following spring (Holland 1994; Reese and Welsh 1997). The western pond turtle diet includes aquatic invertebrates, carrion, algae, plant matter, and occasionally small fish or amphibians (Bury 1986; Holland 1994).

The species was historically present in many drainages of the Coast, Transverse, and Peninsular Ranges from southern San Francisco Bay to Baja California (Stebbins 2003, Thomson et al. 2016). Urbanization, wetland reclamation, channelization of waterways, mortality on roads, and increased rates of juvenile predation by nonnative animals have led to population declines and local extirpations (Holland 1994; Thomson et al. 2016; Shaffer et al. 2019; Nicholson et al. 2020).

Suitable habitat is present within the Action Area and the southwestern pond turtle has been observed within Honda Creek approximately three miles upstream of the Honda Bridge (MSRS 2009). The species has not been detected within the Action Area but could occur, especially in years with high rainfall.

3. ***Anniella pulchra*** **(northern CA legless lizard) CDFW SSC, G3/S3:** The Northern California legless lizard occurs in the central and southern San Joaquin Valley and the Coast Ranges from Monterey Bay to the Western Transverse Ranges (Papenfuss and Parham 2013). A variety of habitat types are occupied but suitable microhabitat contains sandy or loamy soils suitable for burrowing and native shrubs that produce an abundance of leaf litter (Stebbins 2003; Kuhnz et al. 2005). Breeding may occur from early spring to mid-summer (Thomson et al. 2016). The nearest occurrence is in coastal sand dunes within the Action Area immediately north of the Honda Bridge (CDFW 2022b). Suitable habitat is present, and the northern CA legless lizard is highly likely to occur within the Action Area.
4. ***Thamnophis hammondii*** **(two-striped garter snake) CDFW SSC, G4/S3S4:** The two-striped garter snake occurs in the Coast, Transverse, and Peninsular Ranges from Monterey County south to San Diego County and into Baja California (Stebbins 2003). It is an aquatic species associated with permanent to semi-permanent pools, rivers, or streams within a variety of habitats including oak woodland, willows, coastal sage scrub, and chaparral (Stebbins 2003; Thomson et al. 2016). The two-striped garter snake was detected during project surveys in Honda Creek within the Action Area.
5. ***Falco peregrinus anatum*** **(American peregrine falcon) Delisted, CDFW Fully Protected, G4T4/S3S4:** The American peregrine falcon is no longer listed under the ESA or CESA but remains fully protected. It occurs in southern Canada, much of the United States, and into northern Mexico (Sibley 2014; White et al. 2020). Eggs are laid in a simple nest-scrape on cliff ledges or artificial ledges on bridges, buildings, or other manmade structures (White et al. 2020). Point Pedernales, approximately 0.5-mile southwest of the Honda Bridge, is a known peregrine falcon nesting site (CDFW 2022b). There is another nesting site approximately 300m upstream (east) of the Honda Bridge (R. Evans, personal communication). Adult and subadult peregrine falcons were observed near Pt. Pedernales in May of 2018 and adults were observed periodically during 2021 and 2022 surveys. Peregrine falcons are highly likely to occur near or over the Action Area but are not known to utilize the Honda Bridge or other areas within the Action Area for nesting.
6. ***Limnodromus griseus*** **(short-billed dowitcher) USFW BCC, G5/SNR:** The short-billed dowitcher could occur in the survey area as a spring or fall migrant (Lehman 2020). Foraging habitat may include sandy shorelines, estuaries, and tidal salt marshes and mudflats (Lehman 2020). The short-billed dowitcher was not observed during project surveys.
7. ***Limosa fedoa*** **(marbled godwit) USFW BCC, G5/SNR*:*** The marbled godwit occurs in the survey area as a common migrant and winter-resident or occasional non-breeding summer

visitor (Lehman 2020). Foraging habitat may include sandy beaches, estuaries, and tidal salt marshes and mudflats (Lehman 2020). The marbled godwit was observed on Honda Beach during surveys of the Proposed Action Area and is highly likely to occur during migration and winter.

8. ***Numenius americanus*** **(long-billed curlew) USFW BCC, CDFW SSC:** The long-billed curlew occurs in the survey area as a migrant, winter-resident, or occasional non-breeding summer visitor (Lehman 2020). Foraging habitat during winter or migration may include coastal strand and dunes, estuaries, tidal salt marsh and mudflats, and agricultural areas (Lehman 2020). The species was observed on Honda Beach during surveys of the Proposed Action Area and is highly likely to occur during migration and winter.
9. ***Numenius phaeopus*** **(whimbrel) USFW BCC, G5/SNR:** The whimbrel occurs in the survey area as a migrant, winter-resident, or occasional non-breeding summer visitor (Lehman 2020). Foraging habitat during winter or migration may include coastal strand and dunes, estuaries, tidal salt marsh and mudflats, agricultural areas, and sod fields and lawns (Lehman 2020). The species was observed on Honda Beach during surveys of the Proposed Action Area and is highly likely to occur during migration and winter.
10. ***Selasphorus sasin*** **(Allen's hummingbird) USFW BCC, G5/S4:** The migratory subspecies of the Allen's hummingbird (*Selasphorus sasin sasin*) winters in Mexico and migrates to California and Oregon to breed (Dunn and Alderfer 2017). Preferred nesting habitat includes coastal riparian areas (Clark and Mitchell 2020; Lehman 2020). The species has been documented breeding on San Antonio Creek and the Santa Ynez River (Lehman 2020) and has been observed in riparian habitat throughout VSFB (eBird 2022). Allen's hummingbird was not observed in the Action Area during project surveys, but potentially suitable breeding habitat is present.
11. ***Spinus lawrencei*** **(Lawrence's goldfinch) USFW BCC, G3G4/S4:** The Lawrence's goldfinch occurs in the survey area sporadically as a migrant or during winter and is not an expected breeder on Santa Barbara's North Coast (Lehman 2020). The species may be found in coastal scrub, open oak and pine woodlands, and willow riparian habitats, often near sources of water (Lehman 2020). The Lawrence's goldfinch was observed within and near Honda Canyon during surveys of the Action Area but is not expected to nest locally.
12. ***Tringa semipalmata*** **(willet) USFW BCC, G5/SNR:** The willet occurs in the survey area as a migrant, winter-resident, or non-breeding summer visitor (Lehman 2020). Habitat used during winter or migration may include sandy beaches, rocky shores, estuaries, and tidal salt marsh and mudflats (Lehman 2020). The species was observed on Honda Beach during surveys of the Proposed Action Area and is highly likely to occur during migration and winter.
13. ***Antrozous pallidus*** **(pallid bat) CDFW SSC, G4/S3**: The pallid bat was detected in Honda Canyon during surveys for the Coast Road culvert replacement project (VSFB 2021). Although the pallid bat may roost in bridges, the open deck structure of the Honda Bridge does not offer suitable shelter from weather and is subjected to high levels of noise and disturbance from crossing trains. It is therefore unlikely that pallid bats would roost within or beneath the Honda Bridge.
14. ***Corynorhinus townsendii*** **(Townsend's big-eared bat) CDFW SSC, G4/S2**: The Townsend's big-eared bat was detected in Honda Canyon during surveys for the Coast Road

culvert replacement project (VSFB 2021). The Townsend's big-eared bat has been documented roosting in abandoned buildings on VSFB including a building approximately 0.25-mile east of the Action Area that has since been removed (CDFW 2022b). Although this species may roost in bridges, the open deck structure of the Honda Bridge does not offer suitable protection from weather and is subjected to high levels of noise and disturbance from crossing trains. It is therefore unlikely that the Townsend's big-eared bat would roost within or beneath the Honda Bridge.

15. ***Lasiurus blossevillii*** **(western red bat) CDFW SSC, G4/S3**: The western red bat occurs in woodlands, forests, and riparian corridors where mature trees are used for roosting and breeding (CDFW 2014). The western red bat was detected at multiple locations on VSFB in 1997 and 1998 (Pierson et al. 2002). The nearest occurrences are approximately 1 mile east and 1 mile southeast of the Action Area (CDFW 2022b). There is potential roosting habitat within the Action Area in Honda Canyon, and east of the Proposed Action Area in mature willow-cottonwood riparian habitat upstream of Coast Road.
16. ***Lasiurus cinereus*** **(hoary bat) CDFW Special Animal, G3G4/S4**: The hoary bat occurs in a wide variety of habitats throughout California and generally roosts in dense foliage near the ends of branches of medium to large deciduous or coniferous trees in woodlands and forests (CDFW 2014). The nearest occurrence is approximately 1 mile east of the Proposed Action Area (CDFW 2022b). There is potential roosting habitat within the Proposed Action Area within Honda Canyon, and east of the Action Area in mature willow-cottonwood riparian habitat upstream of Coast Road.
17. ***Myotis yumanensis*** **(Yuma myotis) CDFW Special Animal, G5/S4**: The Yuma myotis is widely distributed throughout California but prefers woodlands near permanent water sources and roost sites that may include crevices in cliffs, buildings, mines, caves, and bridges (CDFW 2014). The nearest occurrence is approximately 0.75-mile northeast of the northern end of the Proposed Action Area (CDFW 2022b). Although the Yuma myotis may roost in bridges, the open deck structure of the Honda Bridge does not offer suitable protection from weather and is subjected to high levels of noise and disturbance from crossing trains. It is therefore unlikely that the Yuma myotis would roost within or beneath the Honda Bridge. The Yuma myotis was detected at multiple locations on VSFB in 1997 and 1998 (Pierson et al. 2002).

ADDITIONAL ANIMALS OF CONSERVATION CONCERN

1. ***Batrachoseps wakei* (Arguello slender salamander):** The Arguello slender salamander was discovered in 2006 and officially described in 2021 (Sweet et al. 2009; Sweet and Jokusch 2021). Global and state rarity rankings have not been assigned, but the species could be ranked G1/S1 due to its limited range. Since 2006, extensive surveys have only found it along the immediate coast from the vicinity of Point Arguello to Honda Canyon occupying a total range of approximately 130 hectares (Sweet et al. 2009; Sweet and Jokusch 2021). It occurs in central coastal scrub, iceplant, and rocky habitats atop marine terraces where it may be found beneath cover objects including rocks and natural and artificial debris that create a sufficient barrier to desiccation (Sweet et al. 2009; Sweet and Jokusch 2021). Near the Action Area, the species is known to occur along the beach access road, near Point Pedernales, and along the UPRR ROW south of the Action Area (Sweet et al. 2009; Sweet and Jokusch 2021). Survey and monitoring work is ongoing and VSFB is collaborating with USGS researchers testing for fungal pathogens that may affect the Arguello slender salamander (Rhys Evans pers. comm. 2022). The species is not a current candidate for state or federal listing and was not treated in the Honda BA. The project is not expected to significantly impact the Arguello slender salamander; however, general wildlife measures to exclude and/or relocate.
2. ***Euphilotes battoides* (buckwheat blue butterfly):** The buckwheat blue butterfly (*Euphilotes battoides* ssp.) found on VSFB was formerly considered a disjunct population of the federally endangered El Segundo blue butterfly (ESBB; *Euphilotes battoides allyni*). Recent genetic analysis determined that the VSFB buckwheat blue butterfly is distinct from the ESBB and therefore has no federal status under the ESA (Dupuis et al. 2020). The VSFB buckwheat blue butterfly is treated here regardless of its lack of federal status as it remains a rare animal that could be subject to a future petition for listing (USFWS 2020). Most of the information below comes from publications treating the ESBB; for purposes of this analysis, it is assumed that published natural history information is applicable to the VSFB taxon. The buckwheat blue butterfly completes its lifecycle on seacliff buckwheat (*Eriogonum parvifolium*) with adults active from mid-June to early September, closely synchronized to the seacliff buckwheat flowering period (Pratt and Ballmer 1993; USFWS 1998). Adults consume the pollen and nectar of seacliff buckwheat and mate and lay eggs on its flowers. Eggs hatch within three to five days, and larvae undergo four instars prior to pupation (Mattoni 1992). During the larval (caterpillar) stage, individuals remain concealed within flower heads and feed primarily on buckwheat seeds. By late August, as buckwheat flowerheads senesce, larvae have pupated in the leaf litter or below ground at the base of food plants until they emerge as adult butterflies the following season (Mattoni 1992; USFWS 1998; USFWS 2008). VSFB surveys have found the buckwheat blue butterfly approximately 2.3 miles from the Proposed Action Area (MSRS 2021; R. Evans pers. comm. 2022). Despite negative survey results within the survey area, hostplants are present, and the buckwheat blue butterfly has the potential to occur. Although the project is not expected to significantly impact the buckwheat blue butterfly, seacliff buckwheat would be planted or seeded where appropriate during restoration efforts.

APPENDIX O. WAVE UPRUSH AND EROSION ANALYSIS (HDR 7/28/2023)







Wave Uprush and Erosion Analysis

Union Pacific Bridge 304.88 Santa Barbara

Vandenberg Space Force Base, California, USA

July 20, 2021

Revision 1 July 28, 2023

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Acronyms and Abbreviations

CCC	California Coastal Commission
DEM	Digital Elevation Model
FEMA	Federal Emergency Management Administration
FIRM	Flood Insurance Rate Maps
HDR	HDR Engineering Inc.
LiDAR	Light Detecting and Ranging
NAVD88	North American Vertical Datum of 1988
NDBC	National Buoy Data Center
NOAA	National Oceanic and Atmospheric Administration
NTR	Non-Tidal Residuals
USGS	United States Geological Survey
USSF	United States Space Force
UP	Union Pacific Railroad
VSFB	Vandenberg Space Face Base

1. Introduction

HDR Engineering Inc. (HDR), under contract to the Union Pacific Railroad (UP), evaluated multiple alternatives for the redesign of Bridge 304.88 Santa Barbara Subdivision (Project or Project Site). UP proposes to replace existing Bridge 304.88 Santa Barbara Subdivision (the Honda bridge) near Lompoc, CA. The existing Honda bridge carries one main track over Canãda Honda Creek on South Base of Vandenberg Space Force Base (VSFB). A location map is shown in Figure 1.



Figure 1. Location Map (Background Image Courtesy of Google Earth).

The existing bridge is approximately 540 feet long and 100 feet high over a steep valley positioned just east of the Pacific Ocean and west of Coast Road. See Figure 2 for an elevation view of the existing bridge. The superstructure consists of a timber ballasted deck on riveted steel deck girders with alternating 30’ and 60’ spans. Substructures consist of riveted and welded steel bents with longitudinal braced bays at each interior 30’ span to form full 4-sided braced towers. Masonry pedestals support each tower leg. The pedestals are concrete or concrete-encased masonry and appear to be in poor to fair condition based on visual assessment but show no signs of current or previous settlements or displacements. Foundations are unknown but are likely to consist of spread footings on rock along the valley south slope approach and timber piles in the riparian area at the bottom of the valley and along the valley north slope approach. It appears that some of the foundations nearest to the creek may be exposed below the concrete (or concrete encasement), which could be a concern to address if existing foundations are re-used. Subsurface conditions are not fully defined, but alluvial deposits and beach sand are present on

the valley floor and wind-blown sand dune deposits are present above the valley all overlying variable Monterey shale bedrock.

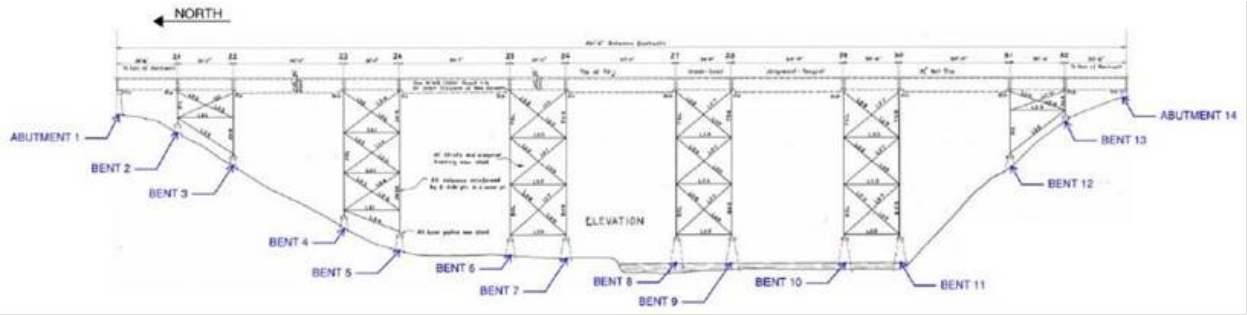


Figure 2. Existing bridge cross-section.

The existing bridge was originally constructed in the 1890's. In 1932, the existing bridge received new steel girder superstructure and significant tower strengthening to accommodate E70 live loading with 50% impact. In 1955, the bridge was converted from open deck to ballast deck and concrete approach slabs were added at the abutments. No other significant rehabilitation or repairs are known between 1955 and the present day. The steel has extensive corrosion and section loss throughout the bridge due to the high chloride environment near the ocean. Based on the deteriorated condition of the existing bridge, UP has determined that it should be replaced.

UP considered several options for replacement of the existing Honda bridge. The preferred alternative was in-line complete replacement with 6-span steel deck plate girder (DPG) superstructure using new reinforced concrete substructures on driven pile foundations with total length of approximately 580 feet as shown in Figure 3. Due to funding considerations, UP is also considering an in-kind replacement using new steel braced towers and spans placed on the existing foundation pedestals. Supplemental foundation work is likely to be required to re-use existing pedestals and foundations. Either replacement option will occupy approximately the same location and footprint as the existing bridge.

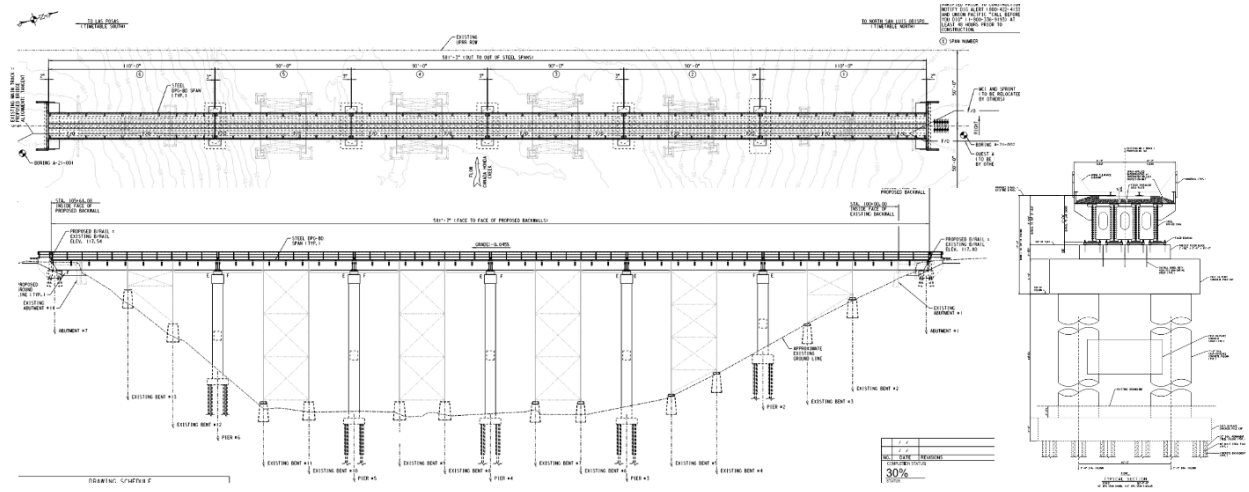


Figure 3. Proposed bridge plan view and cross section.

HDR was contracted to evaluate existing and potential future coastal hazards (i.e. flooding and inundation) that may impact the design. The approach of this analysis was developed using the Sea Level Rise Policy Guidance developed by the California Coastal Commission (CCC) (California Coastal Commission, 2018).

2. Scope

HDR executed the following tasks to support the UP Honda bridge design at (34°36'29.17" N, 120°38'8.87" W). HDR's approach for this study is consistent with that outlined in the CCC Sea Level Rise Policy Guidance (2018). HDR reviewed the available information for the study area to form an overview of the Project Site from a coastal perspective. Data reviewed includes topographic and bathymetric information (LIDAR, DEMs, etc.), Coastal Storm Observing System (CoSMoS 3.0), beach profile data (e.g. CoastSat), FEMA data (effective and preliminary maps), wave/tidal data (e.g. NOAA Tides & Currents, NOAA National Data Buoy Center) and publicly available existing coastal studies.

The focus of the coastal hazard assessment is to analyze the Project's vulnerability to coastal flood and erosion hazards in detail. This task incorporates the findings from the preliminary coastal hazard assessment and review of existing data into a Wave Runup Study. A focus of the Wave Runup Study is to quantify the existing and future extreme storm events in combination with future predictions of sea level rise. The study estimates existing and future wave runup elevations during frequently occurring and extreme events (assumed 10-year and 100-year return period wave events within 10-, 25-, 50- and100-year time horizons in the future). This analysis also includes an assessment of the existing and future coastal erosion hazard to Bridge 304.88 Santa Barbara Sub. The analysis qualitatively describes the frequency of coastal hazard exposure and the specific selected alternative's sensitivity to these hazards. The Wave Runup Study report serves to inform the planning, design and permitting for the Honda bridge replacement.

3. Existing Conditions & Coastal Setting

The study area spans 750 feet across La Honda Canyon on VSFB. The Project Site is located approximately 550 feet inland from the existing shoreline with a mild topographic rise from the existing shoreline to the foundations of the existing bridge foundations. High relief cliffs bound La Honda Canyon and the Project Site to the north and south. Coast Road is located inland near the existing UP track. In the immediate study area, Coast Road shifts 500 feet east to meet existing grade.

Approximate elevations of key features in the study area (relative to NAVD88, feet) are as follows:

- Existing bridge underdeck: 114 ft
- Railroad track: 131 ft
- Coast Road: 100 ft
- Existing grade: 15 ft

Jurisdictionally, UP owns and operates the track within the existing right of way on VSFB. The United States Space Force (USSF) manages the land outside of UP right of way. The existing bridge deck is located nearly 100 feet above the existing grade. As a result, only the bridge foundations are vulnerable to wave impacts and associated scour. Recent photos from the Project Site suggest the bridge is impacted by a non-extreme, moderate wave event and high tide. Images from the Project show an existing wrack line east of the existing bridge that is consistent with a high-water event.

3.1. FEMA Mapping

The Federal Emergency Management Administration (FEMA) maps national coastal hazards using water level and wave data to derive their Flood Insurance Rate Maps (FIRM). Although these maps do not include sea level rise, they do include wave induced water levels including runup. These products were reviewed for the Project Site to understand FEMA mapped coastal hazards in the Study Area.

The FEMA FIRM for the Project Site (Panel 06083C0960G issued 09/28/2018) maps the Project Site in Zone VE (EL 23), as shown in Figure 4. These zones are defined below:

- **Zone VE (EL 23 NAVD88)** – Coastal High Hazard Area with a base flood elevation (BFE) of 23 feet (NAVD88). The zone includes anticipated wave heights at or exceeding 3 feet; however, allows construction when the structure is designed to accommodate anticipated wave forces and when the minimum building foundations are above the BFE.

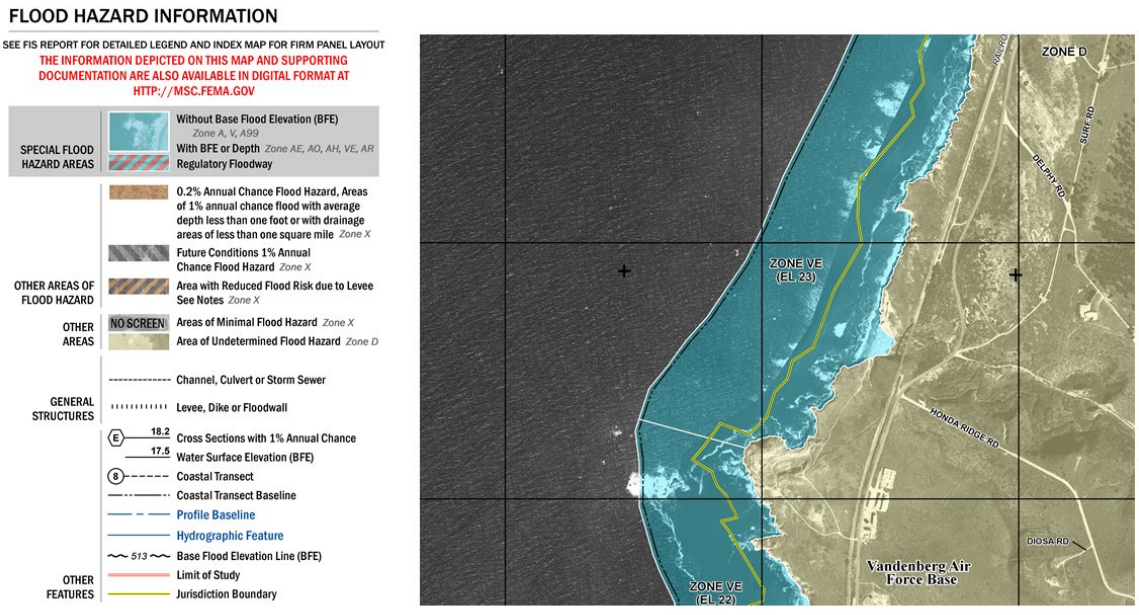


Figure 4. FEMA NFIP Preliminary Flood Map for the Project Area.

3.2. U.S. Geological Survey Coastal Storm Observing System (CoSMoS 3.0)

Developed by the U.S. Geological Survey (USGS), the Coastal Storm Modeling System (CoSMoS) generates detailed predictions (meter-scale) over large geographic scales (100s of

kilometers) of storm-induced coastal flooding and erosion for both current and future sea-level rise (SLR) scenarios.

CoSMoS v3.0 for Southern California shows projections for future climate scenarios (sea-level rise and storms) to provide emergency responders and coastal planners with critical storm-hazards information that can be used to increase public safety, mitigate physical damages, and more effectively manage and allocate resources within complex coastal settings. Data for Southern California includes storm-hazard information for the coast from the Mexican Border to Pt. Conception.

The CoSMoS results for the Project Site were downloaded and reviewed from USGS's Our Coast, Our Future website (Point Blue Conservation Science, 2017). Model results are shown in Figure **5**. CoSMoS results suggest that under the 100-yr event, the project is not vulnerable to wave action. The inundation line is seaward of the Project. However, with 1 m of sea level rise added to the 100-yr event, model results place the bridge foundations within the coastal inundation zone.

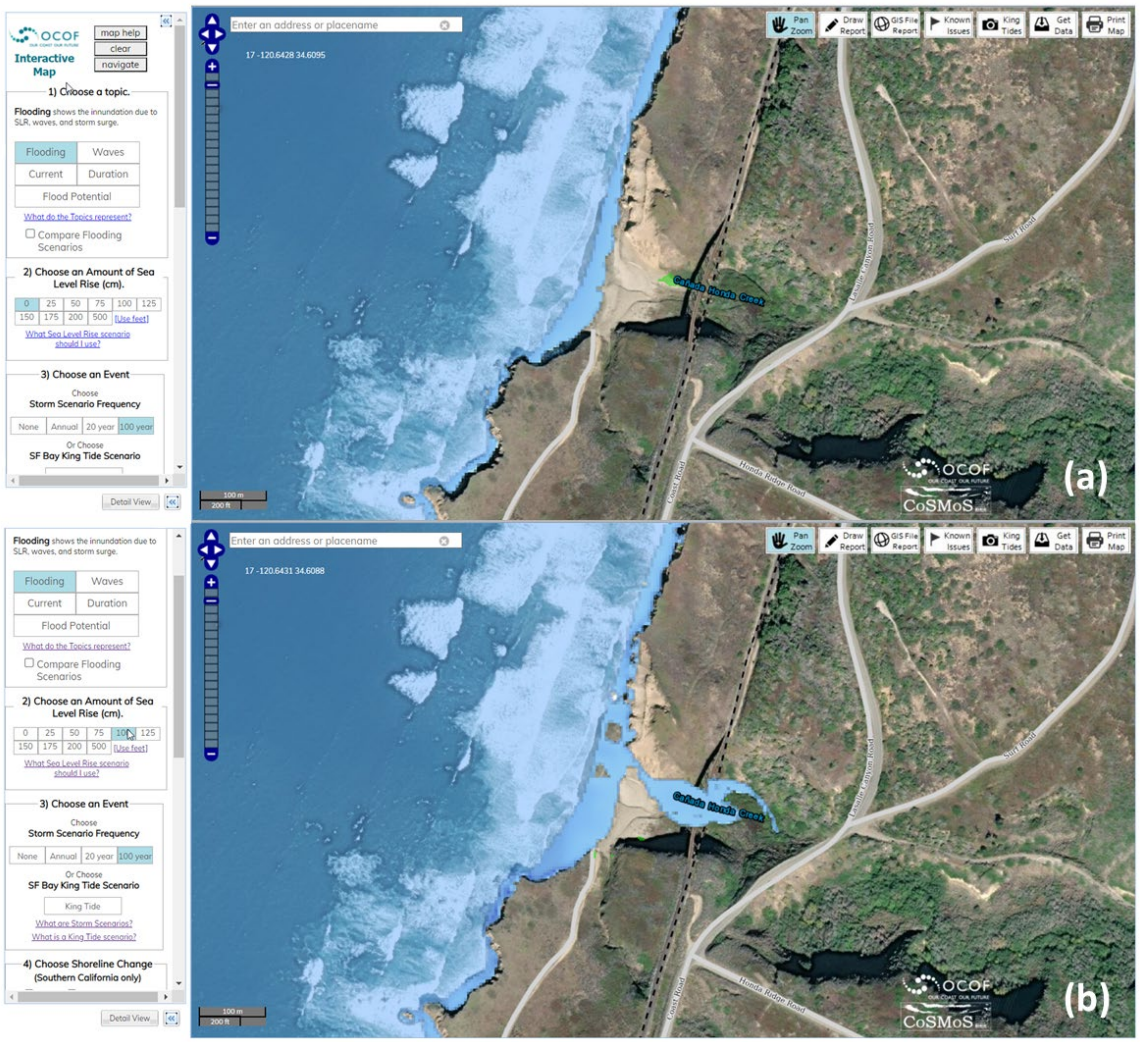


Figure 5. **CoSMoS 3.0 results for Project Area: (a) 100-yr flood without sea level rise and (b) 100-yr flood with 1 m of sea level rise.**

3.3. ASCE Tsunami Hazard Tool

The ASCE Tsunami Design Geodatabase application provides insight into the first national, consensus-based standard for tsunami resilience for use in the states of Alaska, Washington, Oregon, California, and Hawaii. The new tsunami design zone maps define the coastal zones where structures of specified risk would be designed for tsunami resistance.

Tsunami elevation data was extracted from ASCE's online Tsunami Hazard Tool near the Project site. The ASCE Tsunami Hazard Tool Runup points prescribe the Runup Elevation at which the tsunami inundation terminates. Runup elevations range between 35.6 ft NAVD88 and 44.5 ft NAVD88 within Honda Canyon (see Figure 6 and Figure 7). Tsunami runup is contained within the canyon walls and is below the existing/proposed bridge deck elevations.

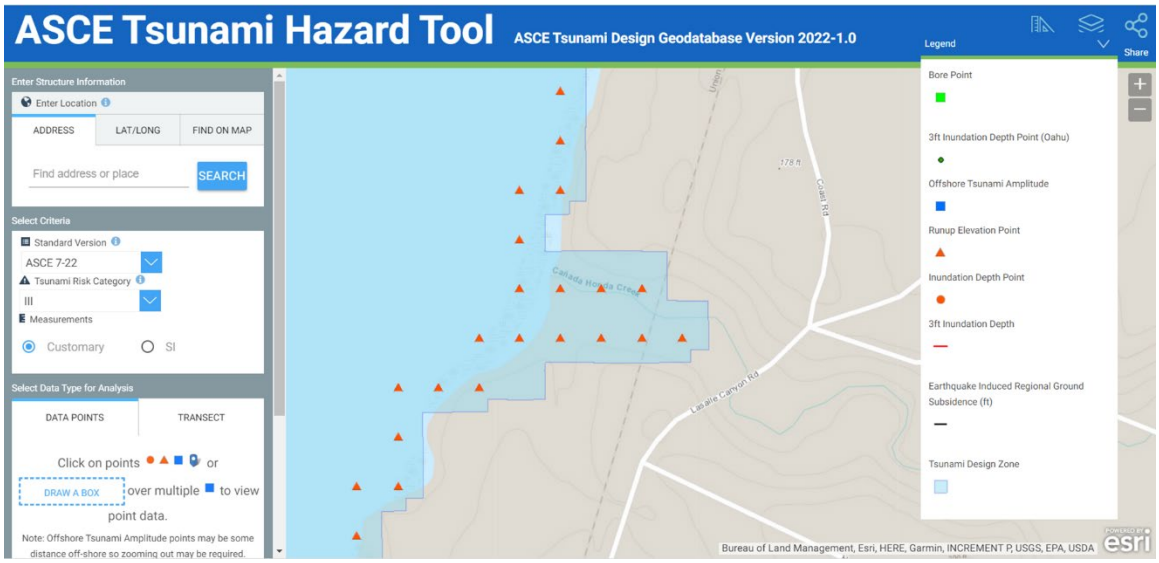


Figure 6. Snapshot from ASCE Tsunami Design Geodatabase near Project site.

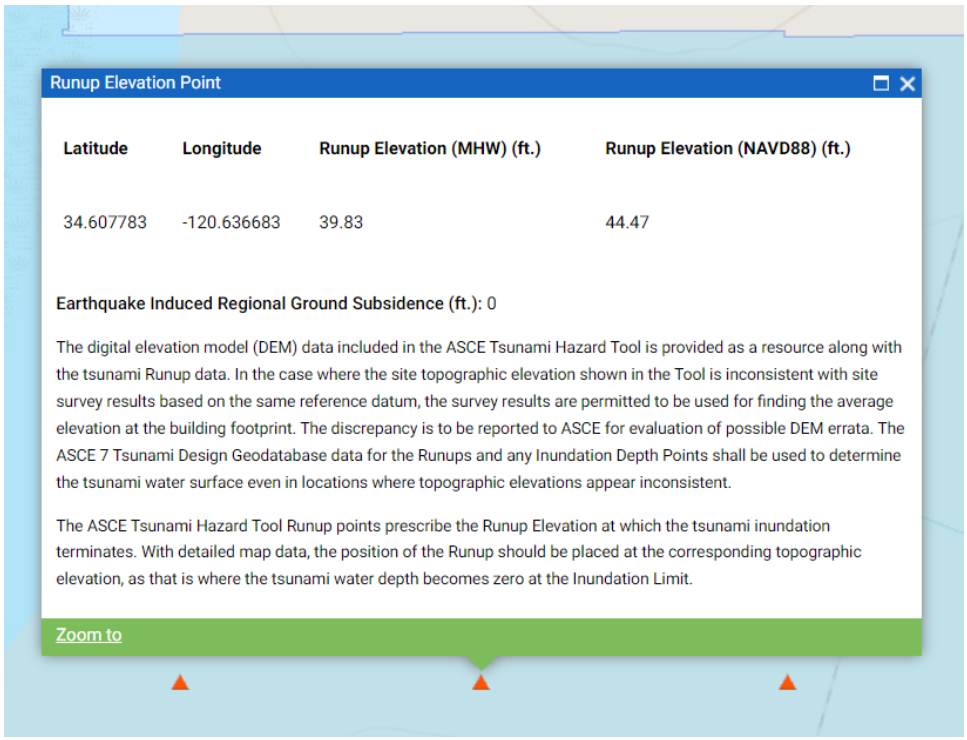


Figure 7. Maximum Tsunami runup elevation within Honda Canyon.

3.4. UNSW CoastSat Profile Data

CoastSat is an open-source software toolkit developed by the University of New South Wales that enables users to obtain time-series of shoreline position at any coastline worldwide from 30+ years of publicly available satellite imagery. CoastSat extracts shorelines from Landsat 5, Landsat 7, Landsat 8, and Sentinel-2 satellite images using a shoreline detection algorithm implemented for sandy beach coastlines. CoastSat combines a sub-pixel border segmentation and an image classification component, which refines the segmentation into four distinct categories such that the shoreline detection is specific to the sand/water interface (Vos et al., 2019).

CoastSat results were extracted from the UNSW CoastSat WebGIS website. Results were not available in the vicinity of the Project Site. However, a transect approximately a mile to the north from the Project Site was downloaded and included in this report. The location of the Transect USA_CA_0127-0000 is shown in Figure 8.

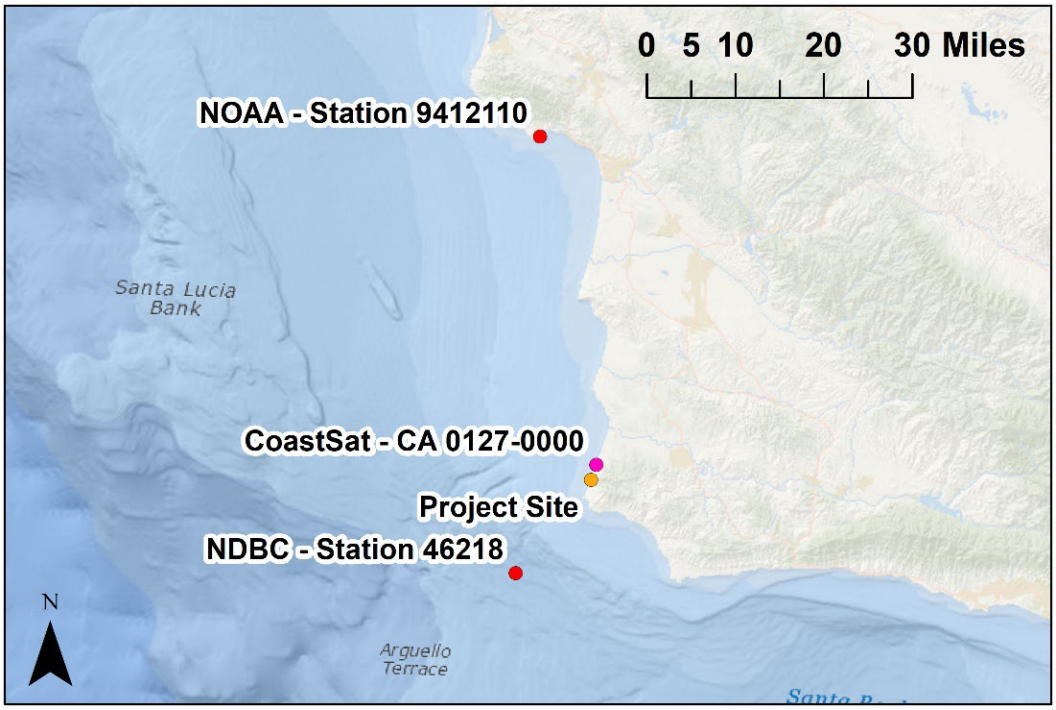


Figure 8: Location of tide gauge, wave buoy and CoastSat data relative to Project Site

The CoastSat time series for Transect CA 0127-000 is shown in Figure 9. Unlike most profiles in California, the CoastSat results suggest that the profile is predominantly influenced by seasonal shifts in the wave climate. Large shifts in cross-shore shoreline position are predicted seasonably of almost 328 feet (100 meters). The largest seasonal shifts appear to correspond with El Niño winters. El Niño events have been observed in 2002–03, 2004–05, 2006–07, 2009–10, 2014–16, and 2018–19 (Climate Prediction Center, 2019).

The CoastSat results suggest sea level rise appears to have less impact on the shoreline profile. There is no apparent long-term decrease shoreline position, unlike many beaches in Southern and Central California that rely on gradients in longshore sediment transport pattern to control the long-term profile erosion. This result suggests the sea cliffs near the Project Site may provide a local sediment source that has historically accommodated sea level rise. Future analysis may be needed understand how this trend may change with increasing relative sea level.

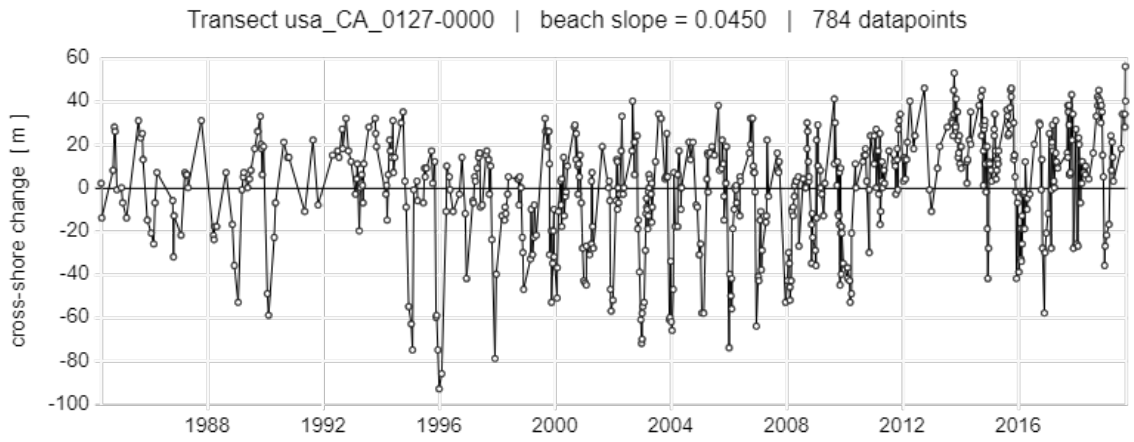


Figure 9. CoastSat result for transect USA CA 0127-0000

4. Oceanographic Data

The purpose of the wave runup analysis is to analyze current and potential future site conditions with respect to wave runup. Elements used to develop this analysis are discussed in this section.

4.1. Tidal Datum

Water level data for the Project Site were obtained from National Oceanic and Atmospheric Administration (NOAA) Port San Luis, CA gauge (Station 9412110). The station is located at 35°10.1' N, 120°45.3' W and was established in 1933. The tide gauge location is shown in Figure 8.

Two other NOAA tide gage sites are located similar distances to the Project Site: Oil Platform at Harvest, CA (Station 9411406) and Santa Barbara, CA (Station ID 9411340). However, the tidal datums for these sites are based upon control stations. NOAA states that for stations with shorter time series, comparison of simultaneous observations with a control tide station is made to derive the equivalent datum of the National Tidal Datum Epoch. Derived datums are not recommended for this analysis and as such, these tide gage sites are not included in the analysis.

Tidal datums in Port San Luis, CA are applicable to the Project Site's open-ocean coastline. The tidal datums are summarized in Table 1. **Elevations in this report are described relative to the North American Vertical Datum of 1988 (NAVD88) datum**.

Table 1. Tidal Datums from NOAA Port San Luis, CA - Station: 9412110

Description	Abbv.	Datum (ft NAVD88)
Highest Observed Tide	Max Tide	7.57
Highest Astronomical Tide	HAT	7.02
Mean Higher-High Water	MHHW	5.25
Mean High Water	MHW	4.54
Mean Tide Level	MTL	2.75
Mean Sea Level	MSL	2.72
Mean Diurnal Tide Level	DTL	2.59
Mean Low Water	MLW	0.96
North American Vertical Datum of 1988	**NAVD88**	**0.00**
Mean Lower-Low Water	MLLW	-0.08
Lowest Astronomical Tide	LAT	-2.07
Lowest Observed Tide	Min Tide	-2.48
Station Datum	STND	-4.33

4.2. Water Levels

Water levels for the Project Site were also obtained from NOAA's Port San Luis gauge (Station 9412110) historical hourly water level record. Astronomical water levels were isolated from the tidal record by regressing known tidal frequencies onto the tidal record. The mean and standard deviation astronomical water levels for the Project site are listed in Table 2.

Table 2. Astronomical and seasonal water level components from NOAA's Port San Luis, CA - Station: 9412110

Water Level Component	Mean (ft NAVD88)	Std. Dev. (ft)
Astronomical	0	1.60
Mean Sea Level Anomaly	0	0.18

Seasonal changes to water levels manifest in what is known as a sea level anomaly. A mean sea level anomaly reveals the regional extent of anomalous water levels in the coastal ocean, which can indicate unusual water temperatures, salinities, average monthly winds, atmospheric pressures, and/or coastal currents. The sea level anomaly occurs over periods of months and demonstrates the interconnectedness of the ocean basin. Sea level anomalies are typical along the U.S. Pacific Coast with climatic events such as the El Niño Southern Oscillation (ENSO) (National Centers for Environmental Information, 2021). The mean and standard deviation sea level anomaly water level for the Project Site are listed in Table 2.

Non-tidal residuals (NTR) consist of components of the recorded water level not linked to astronomical tide or seasonal water levels. NTRs include water level responses to regional effects such as storm surge and changes in atmospheric pressure and typically occur on the order of

hours or days. Storm surge is an abnormal rise of water over and above the predicted astronomical tide, typically generated by a storm, and is generally the result of wind-induced set up along a shoreline. Atmospheric pressure changes result in water column expansion or retraction due to low and high-pressure systems, respectively.

Return period NTR events within the Port San Luis tidal record were identified through a statistical analysis of the remaining residuals (after removal of the tidal harmonics and seasonal signal). Results are summarized in Table 3 and shown in Figure 10. The data indicate the 50- and 100-year NTR events are 2.13 feet and 2.30 feet, respectively.

Table 3. Non-tidal residual water level component from NOAA's Port San Luis, CA, CA - Station: 9412110

Return Period (yr)	Non-Tidal Residual (ft)
10	1.74
25	1.97
50	2.13
100	2.30

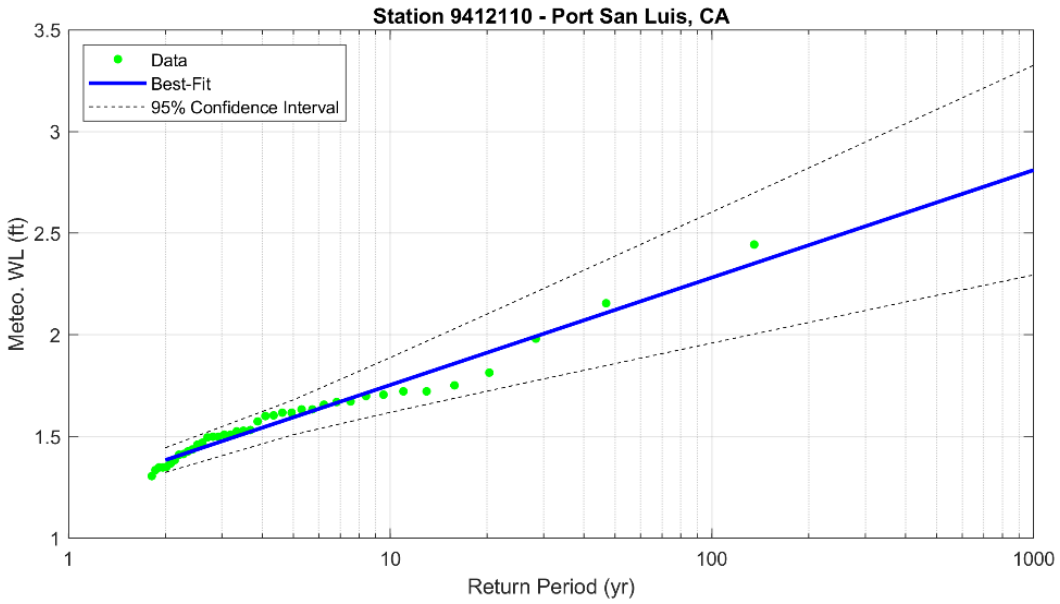


Figure 10. Non-tidal residual hazard curve for NOAA Port San Luis, CA, CA - Station: 9412110

4.3. Sea Level Rise

NOAA's Tides & Currents website (Center for Operational Oceanographic Products and Services, 2021) provides estimates of historic sea level rise for most of the network's tidal gages. The published figure for Port San Luis, CA – Station 9412110 is shown in Figure 11. The plot shows the monthly mean sea level without the regular seasonal fluctuations due to coastal ocean temperatures, salinities, winds, atmospheric pressures, and ocean currents. The long-term linear trend is also shown, including its 95% confidence interval. The relative sea level trend is 0.96

millimeters/year with a 95% confidence interval of +/- 0.36 mm/yr based on monthly mean sea level data from 1945 to 2020. This is equivalent to a change of 0.31 feet in 100 years.

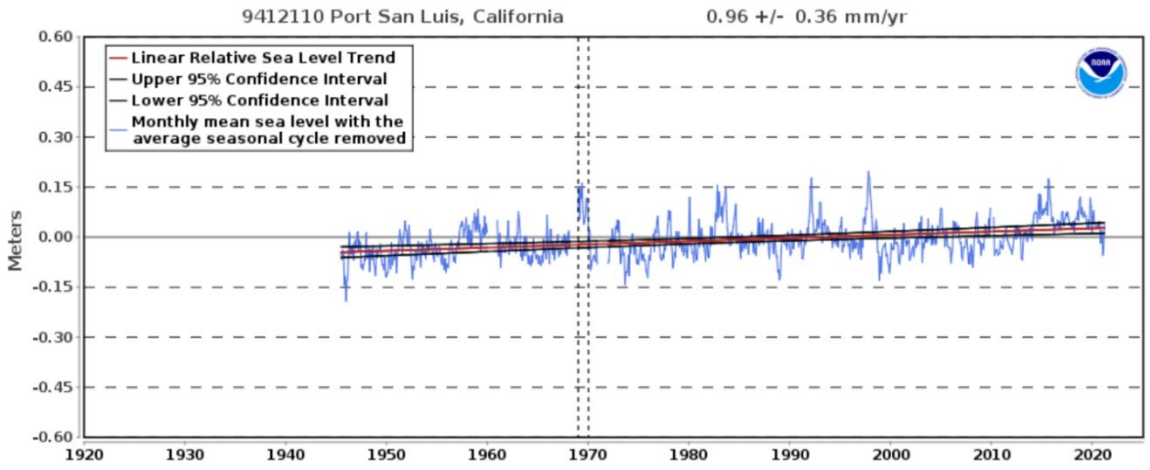


Figure 11. Historic rate of sea level rise for NOAA's Port San Luis, CA - Station: 9412110.

Sea level rise trends were taken from California Coastal Commission Sea Level Rise Policy Guidance for the Port San Luis tide gauge (see Table 4) (California Coastal Commission, 2018). The authors state that the table is adapted from the 2018 California Ocean Protection Council Sea Level Rise Guidance (Ocean Protection Council, 2018) to present only the three scenarios OPC recommends evaluating. These scenarios are known as Representative Concentration Pathways (RCP). Each RCP represents possible underlying socioeconomic conditions and technological considerations, including:

- **RCP 2.6**: a low-end member requiring strong mitigation.
- **RCP 4.5**: a moderate mitigation member with stabilizing emissions through 2050 and declining thereafter.
- **RCP 8.5**: high-end, 'business-as-usual' emission scenario.

While the OPC tables include low emissions scenarios (RCP 2.6 and 4.5), only high emissions scenarios, which represent RCP 8.5, are included in this study because global greenhouse gas emissions are currently tracking along this trajectory. The Extreme Risk Aversion (also known as the H++) Scenario has an associated likelihood of occurrence. Projections are relative to a baseline year of 2000 (or more specifically, the average relative sea level over 1991-2009).

Assuming a middle service life between 2025 and 2075, the maximum amount of sea level rise expected under the H++ Scenario is 5.7 feet. The maximum amount of sea level rise projected in 2125 under H++ Scenario is 15.0 feet, which corresponds to the end of expected service life for the proposed bridge. The design value predicted under the medium-high risk category is 3.7 feet.

Table 4. Projected Sea Level Rise (in feet) for NOAA Port San Luis, CA 9412110 (Adapted from: California Coastal Commission Sea Level Rise Policy Guidance)

Year	Probabilistic Projections (based on Kopp et al. 2014)		H++ Scenario (Sweet et al. 2017)
	Low Risk Aversion	Medium-High Risk Aversion	Extreme Risk Aversion
2025	0.4	0.6	0.8
2030	0.5	0.7	1.0
2035	0.6	1.0	1.3
2040	0.7	1.2	1.6
2050	1.0	1.8	2.6
2060	1.3	2.5	3.7
2070	1.7	3.3	5.0
2075	1.9	3.8	5.7
2080	2.1	4.3	6.4
2090	2.6	5.3	8.0
2100	3.1	6.7	9.9
2125	4.0	8.9	15.0

4.4. Wave Data

Water level data for the Project Site were obtained from the National Buoy Data Center (NBDC) Harvest, CA (071) buoy (Station 46218). The station is located at (34° 27' 6" N, 120° 46' 47" W) and was established in 2004. The wave buoy location is shown in Figure 8. The associated wave height and wave period roses from this buoy are shown in Figure 12.

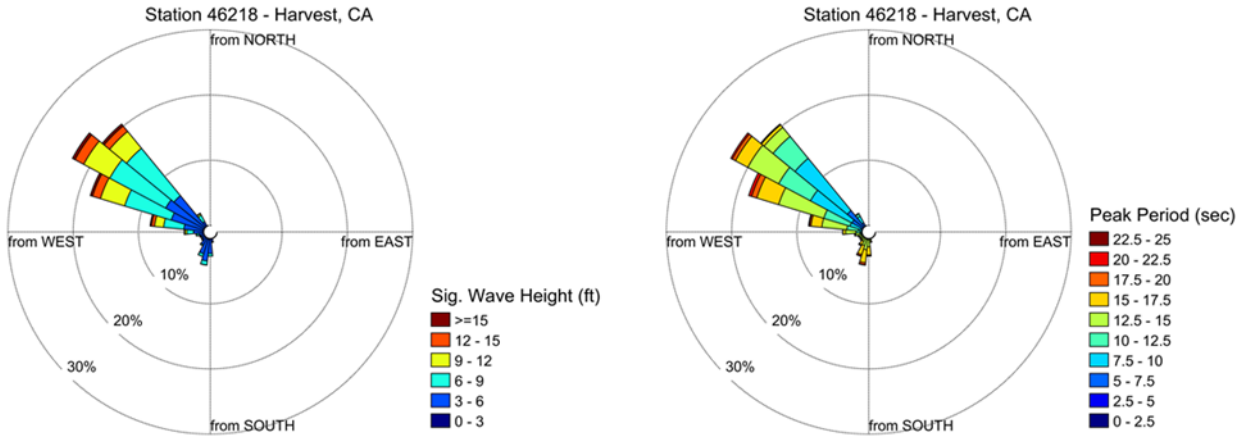


Figure 12: Significant wave height (left) and peak period (right) wave rose for NBDC Harvest, CA (Station 46218)

The wave roses indicate that the Project Site is vulnerable to a mixture of northwest and southwest wave energy. The data indicate the northwest energy, generated in the North Pacific, is characterized by broad banded significant wave height and wave period energy with most of the extreme wave energy from this direction. The wave energy from the southwest is generated from

the Southern Hemisphere from subtropical storms. This wave energy is generally small in wave height compared to the northwesterly energy but has larger mean periods.

Return period significant wave height events at the NBDC station were identified through a statistical analysis of the wave buoy record. Wave periods were extrapolated from a regression analysis of significant wave height and peak wave period data. Results are summarized in Table 5 and shown graphically in Figure 13. The data indicate the 50- and 100-year return period wave events have a significant wave height and peak wave period of 33.1 feet at 15.0 seconds and 35.0 feet at 15.2 seconds, respectively.

Table 5. Significant wave height and peak period statistical values for NBDC Harvest, CA (Station 46218)

Return Period (year)	Significant Wave Height (feet)	Peak Wave Period (seconds)
10	28.8	14.5
25	31.2	14.8
50	33.1	15.0
100	35.0	15.2

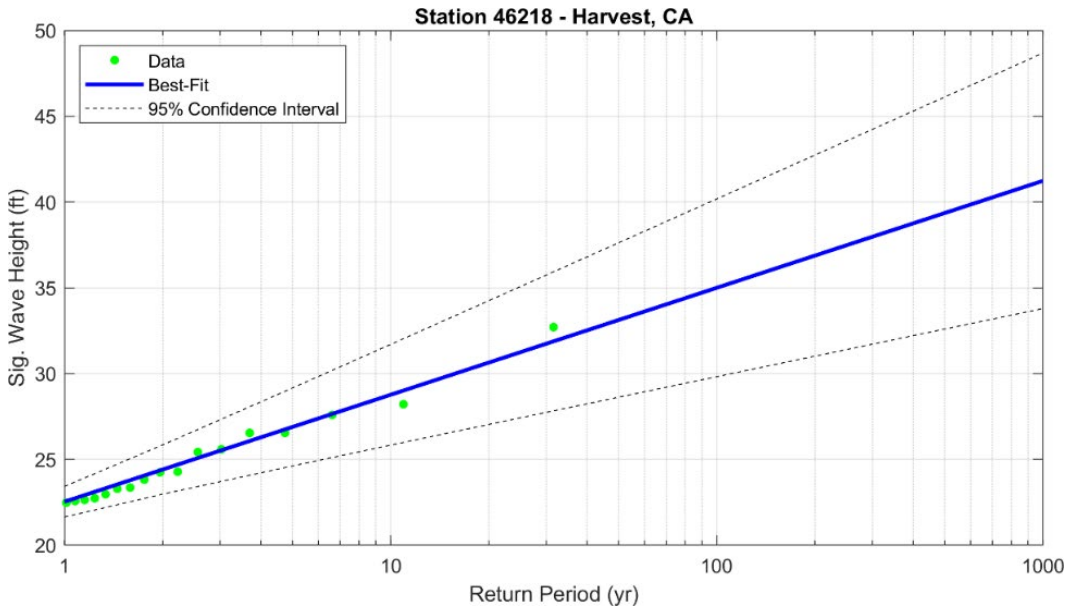


Figure 13. Significant wave height hazard curve for NBDC Harvest, CA buoy (Station 46218)

5. Topographic Data

Topography data at the Project Site were gathered from USGS's Southern California Wildfire (2017) Digital Elevation Model (DEM) survey dataset (U.S. Geological Survey, 2021) in processed to develop elevation contours. These contours in the vicinity of the Project Site are shown in Figure 14. Red contours illustrate the 10 feet intervals with the elevation referenced to NAVD88. Green contours show the intermediate 5 feet interval. Specific profiles used to assess the wave runup and erosion hazard will be discussed later in this report.

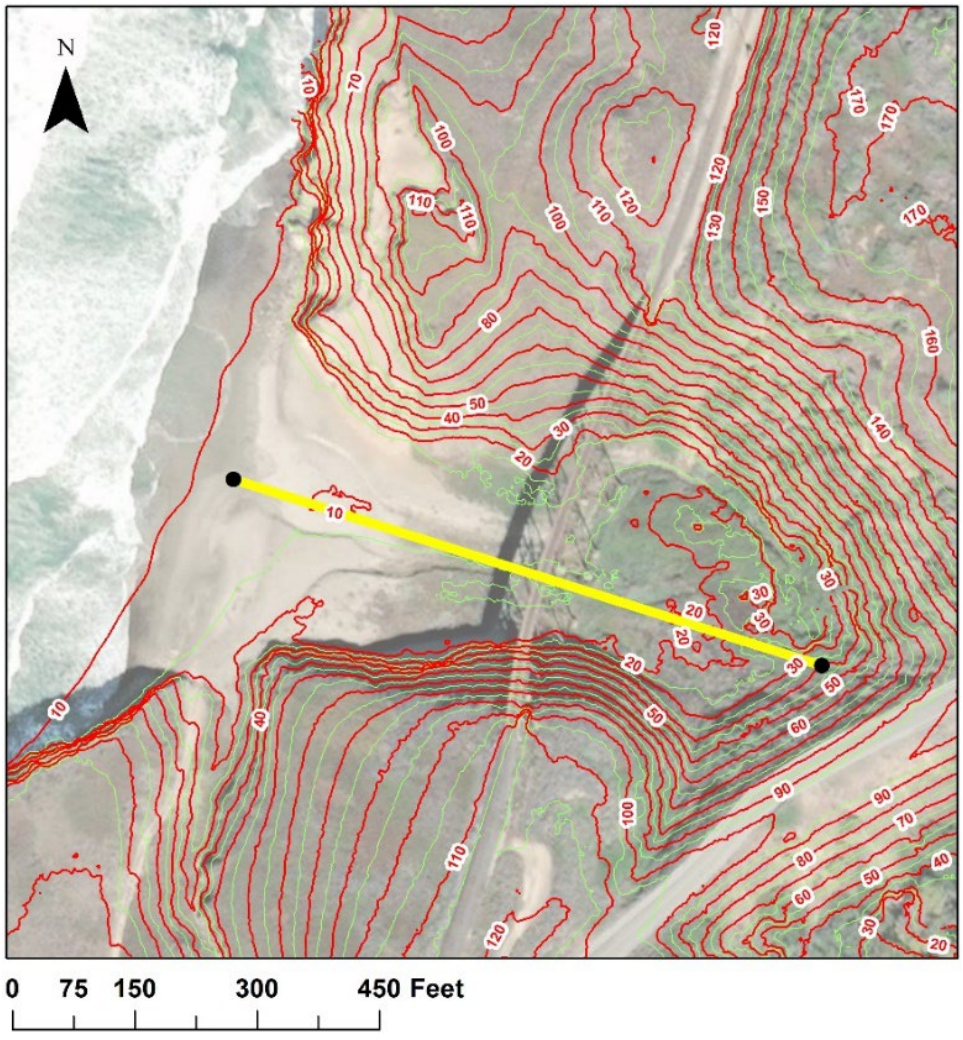


Figure 14. Elevation contours based on USGS Southern California Wildfire (2018) LiDAR in the vicinity of the Project Site (relative to NAVD88). (Red labeled contours = 10 feet; Green intermediate contours = 5 feet). Beach profile location is shown in yellow.

6. Wave Uprush Analysis

Probabilistic hazard analysis provides a means to incorporate natural uncertainties, model uncertainties and errors into the hazard assessment. Probabilistic hazard analysis was extended to oceanographic problems [see Geist & Parsons (2006) & Geist & Lynett (2014)] by adapting a long-standing probabilistic method for determining ground motion exceedance caused by earthquake known as probabilistic seismic hazard analysis (Cornell, 1968).

Probabilistic hazard analysis is founded on the idea of separating input variable return periods (e.g. storm surge, significant wave height) from hazard recurrence periods. Using a Monte Carlo methodology, variables constrained by the prescribed probability density functions can be input to a given set of governing equations to generate realizations which define the hazard recurrence space. This methodology is ideal where the governing equations may be well known, but the independent variables of the input as well as the resisting design components may not be completely known. The process repeats hundreds or thousands of times to generate a statistical understanding of design parameters (e.g. still water level, runup elevation) which contains the uncertainty of the input parameters. Once the statistical parameters space is defined, the maximum envelope of all realizations is estimated which represents the best estimate of the design parameter hazard. This curve is what is known as the hazard curve.

For a given set of significant wave heights and water levels, it is possible that each parameter set can have the same recurrence period but that the individual components can have vastly difference individual recurrences. When coupled with a set of governing equations, the difference in the input parameters can result in a wide array of possible solutions which define the parameter space by recurrence period. By defining the maximum envelope or hazard curve for a given set of significant wave heights and water levels, it is possible to directly estimate which solution defines the upper bound of the recurrence hazard. This upper bound is what is defined as the hazard curve.

The run-up elevations (R_T) for the Project site were estimated using a Monte Carlo methodology where the water level is a summation of induvial components.

$$R_T = \eta_{DATUM} + \eta_{ASTRO} + \eta_{SEASON} + \eta_{NTR} + \eta_{SLR} + R_{2\%} \quad (1)$$

where η_{DATUM} is the data reference, η_{ASTRO} is the tidal elevation, η_{SEASON} is the seasonal water level elevation, η_{NTR} is the non-tidal residual elevation, η_{SLR} is the sea level rise elevation at a given time period and $R_{2\%}$ is the run-up point reached or exceeded by only 2% of all waves.

The runup elevations for the Project Site were estimated using the Stockdon et al. (2006) empirical runup equation (Eq. 1). This equation is commonly used to estimate runup on sandy beaches along the western U.S. shorelines. The equation is defined as follows:

$$R_{2\%} = 1.1\left(0.35\beta_f(H_0L_0)^{1/2} + \frac{\left[H_0L_0\left(0.563\beta_f^2 \quad + 0.004\right)\right]^{1/2}}{2}\right) \quad (2)$$

where: $R_{2\%}$ is the maximum runup height reached or exceeded by only 2% of all waves, H_0 is offshore significant wave height, L_0 is offshore wavelength and β_f is the beach slope. The R2% runup level is a common metric for quantifying the maximum elevation inundated during a storm event.

Runup elevations with respect to design year for the Project Site are given in Table 6 and shown graphically in Figures 15-18. The 100-year return period events for the 2025 design year are 24.8

feet NAVD88. The 100-year return period event increases to 28.9-30.8 feet NAVD88 for the 2075 design year. The extreme estimate for 2125 is 39.8 feet NAVD88 which is contained within the walls of the lower canyon (see Figure 14 for site elevations).

Table 6 and following figures are divided into SLR "steps" as listed below. The 10-, 25-, 50- and 100-year future SLR estimates combined with the 100-yr return period storm wave data are used in the figures.

- 2025 to 2035 (10 years) – Early service life, very likely to experience based on current conditions.
- 2025 to 2050 (25 years) – Likely to experience based on current conditions.
- 2025 to 2075 (50 years) – Middle service life selected for basis of design with Moderate-High risk profile based on railroad client preference. Estimates out this far in the future begin to get difficult since science and conditions will change.
- 2025 to 2125 (100 years) – End of service life required for consideration of suitability and adaptability for H++ risk profile based on CCC critical transportation use. Science and conditions will continue to evolve and these estimates are likely too far out in the future to be accurate.

Table 6. Wave runup elevations (in feet NAVD88) for the Project's projected service life

Design Year	SLR Projection	Wave Return Period (yr)			
		10	25	50	100
2025	**Existing**	21.5	22.8	23.8	24.8
2035	**Low**	22.3	23.5	24.5	25.6
	Moderate-High	22.6	23.9	24.9	25.9
	Extreme	23.0	24.2	25.2	26.3
2050	**Low**	22.7	24.0	25.0	26.0
	Moderate-High	23.5	24.8	25.8	26.8
	Extreme	24.3	25.6	26.6	27.6
2075	**Low**	23.8	25.0	26.0	27.1
	Moderate-High	25.6	26.9	27.9	28.9
	Extreme	27.5	28.7	29.7	30.8
2125	**Low**	25.5	26.8	27.8	28.8
	Moderate-High	30.4	31.7	32.7	33.7
	Extreme	36.5	37.8	38.8	39.8

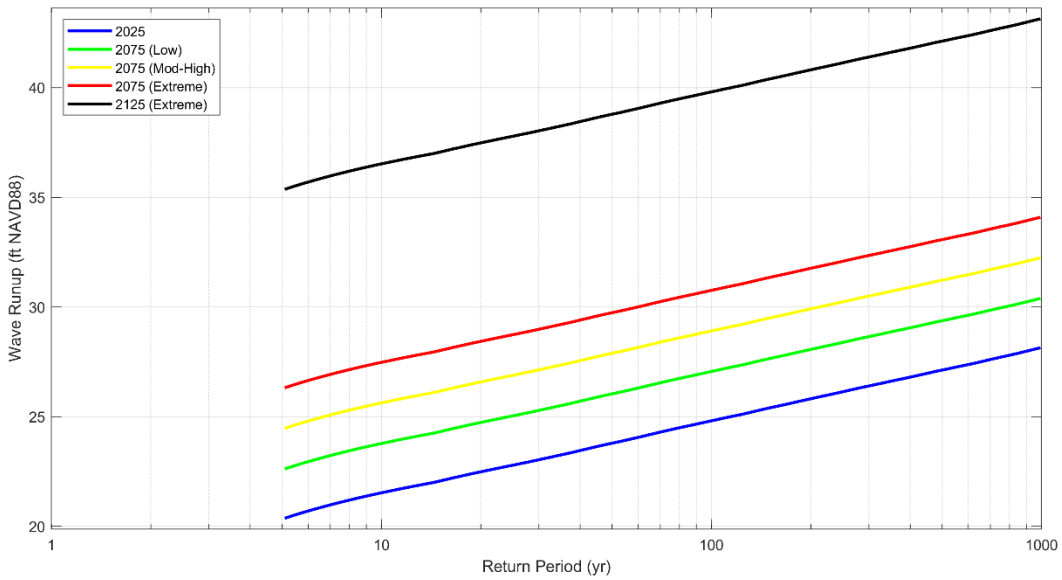


Figure 15. Wave runup elevations (in feet NAVD88) for 2025, 2075 and 2125 with CCC sea level rise projections. (Note that this is presented in log scale to plot the data, but that 100-yr return period values were used for design.)

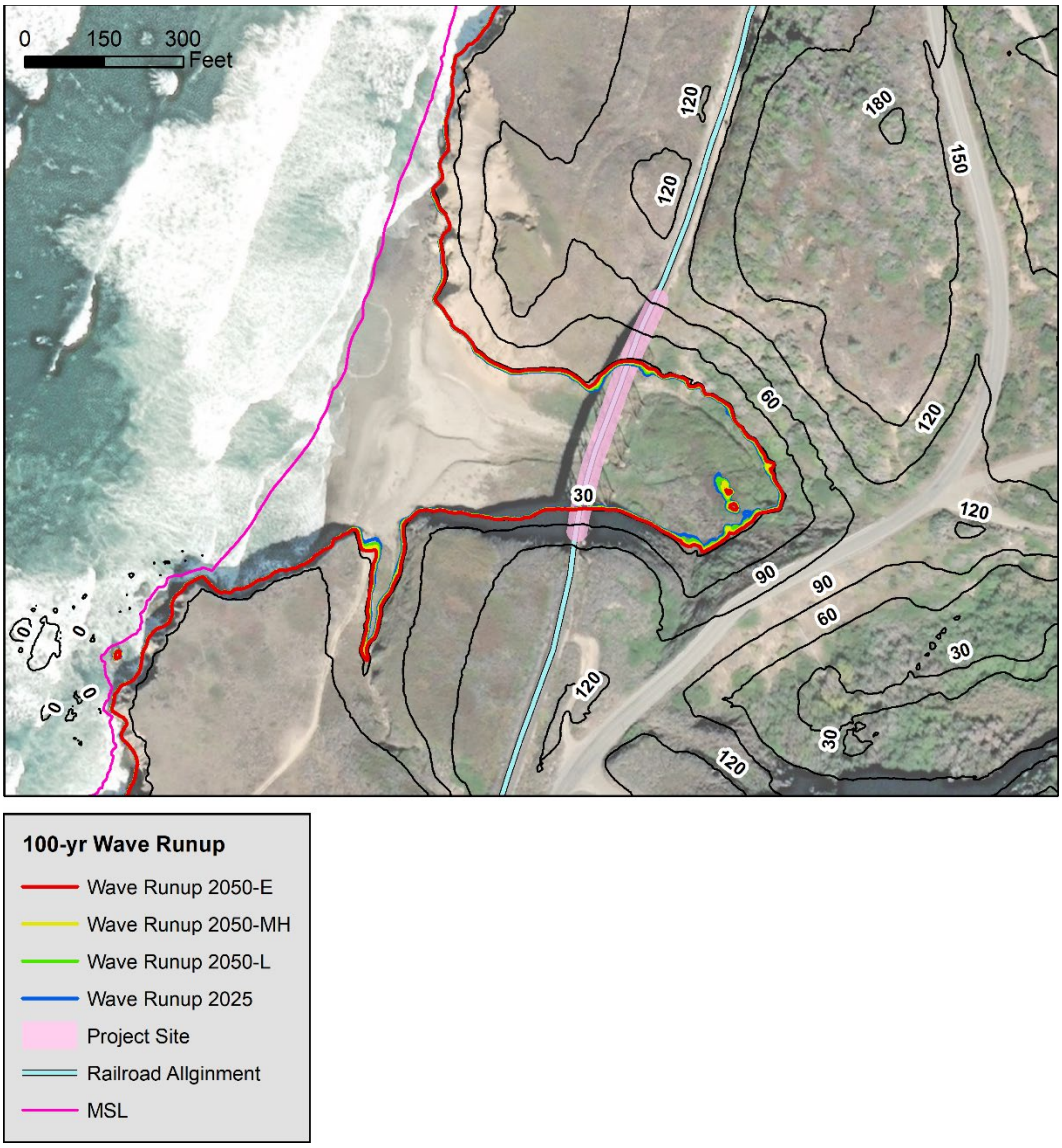


Figure 16. 100-yr return period wave runup contours for 2025 and 2050 (with 30-ft contours in black).

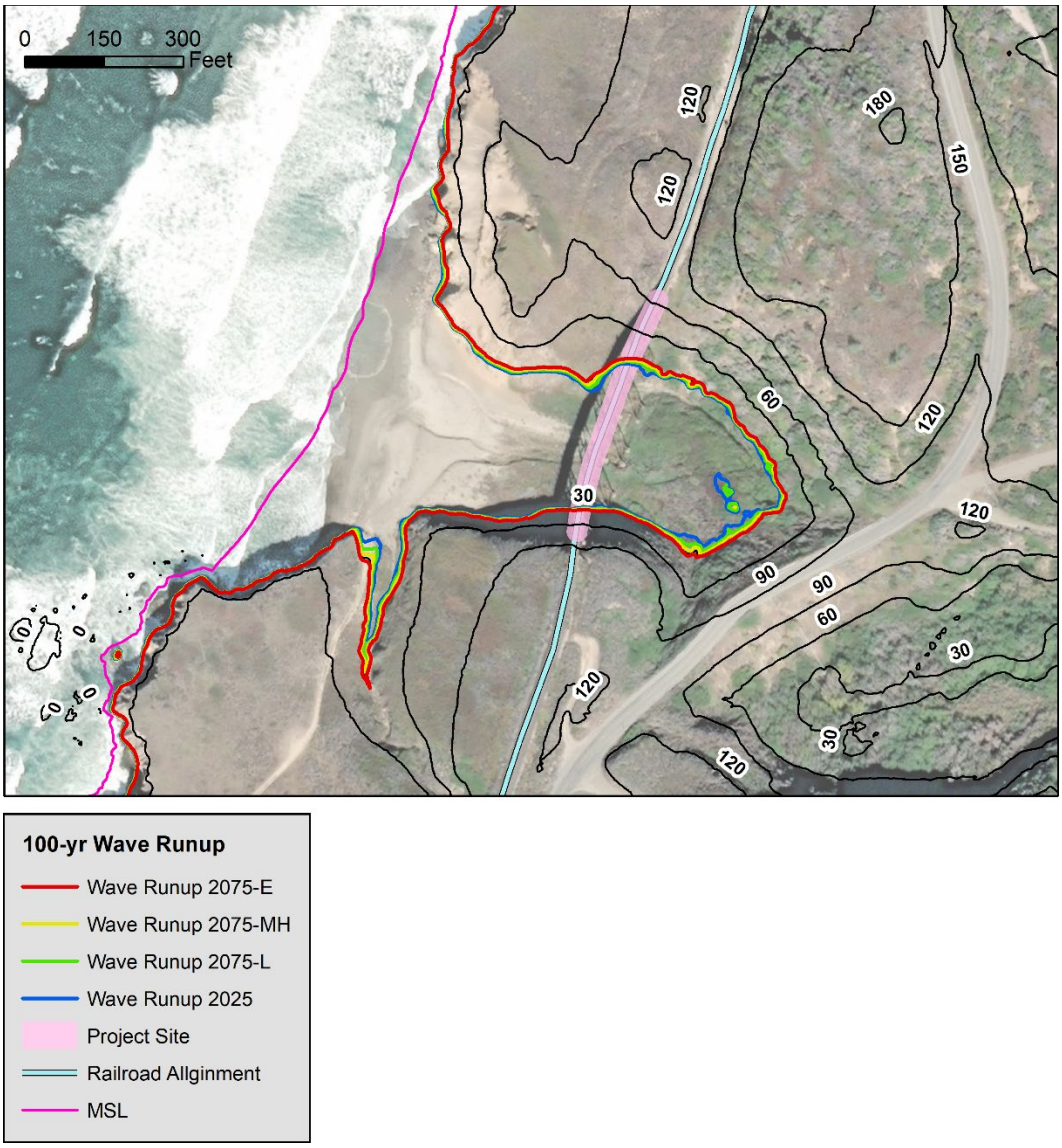


Figure 17. 100-yr return period wave runup contours for 2025 and 2075 (with 30-ft contours in black).

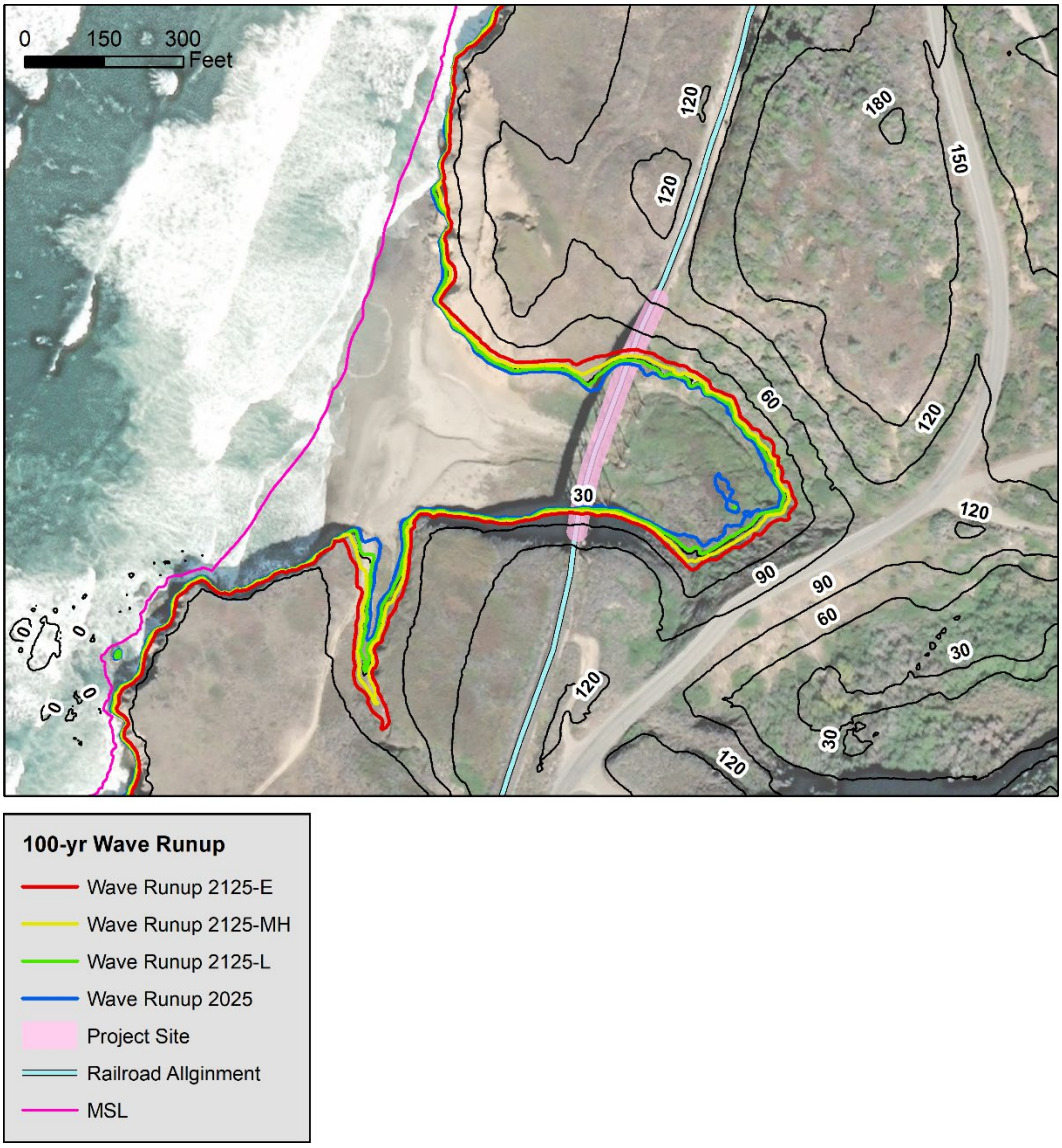


Figure 18. 100-yr return period wave runup contours for 2025 and 2125 (with 30-ft contours in black).

The runup analysis indicates that the Project Site is within the coastal flood plain during the Project's projected service life starting as early as 2025 and increasing into the future. There is little dependence on return period. As previously stated, this inundation should only affect the Project's substructure. High coastal relief to the north and south limit the Project's vulnerability as the bridge deck sits nearly 100 feet above the existing grade, making wave impacts geophysically improbable.

7. Erosion Analysis

Revell et al. (2011) define two types of erosion within the coastal zone. Dune erosion hazard zones are defined as the coastal band subject to chronic and episodic erosion. Cliff hazard zones are characterized as high relief areas that are typically only subject to chronic sea level rise induced erosion. The dune and erosion hazard zones are shown in Figure 19 for the Project Site.

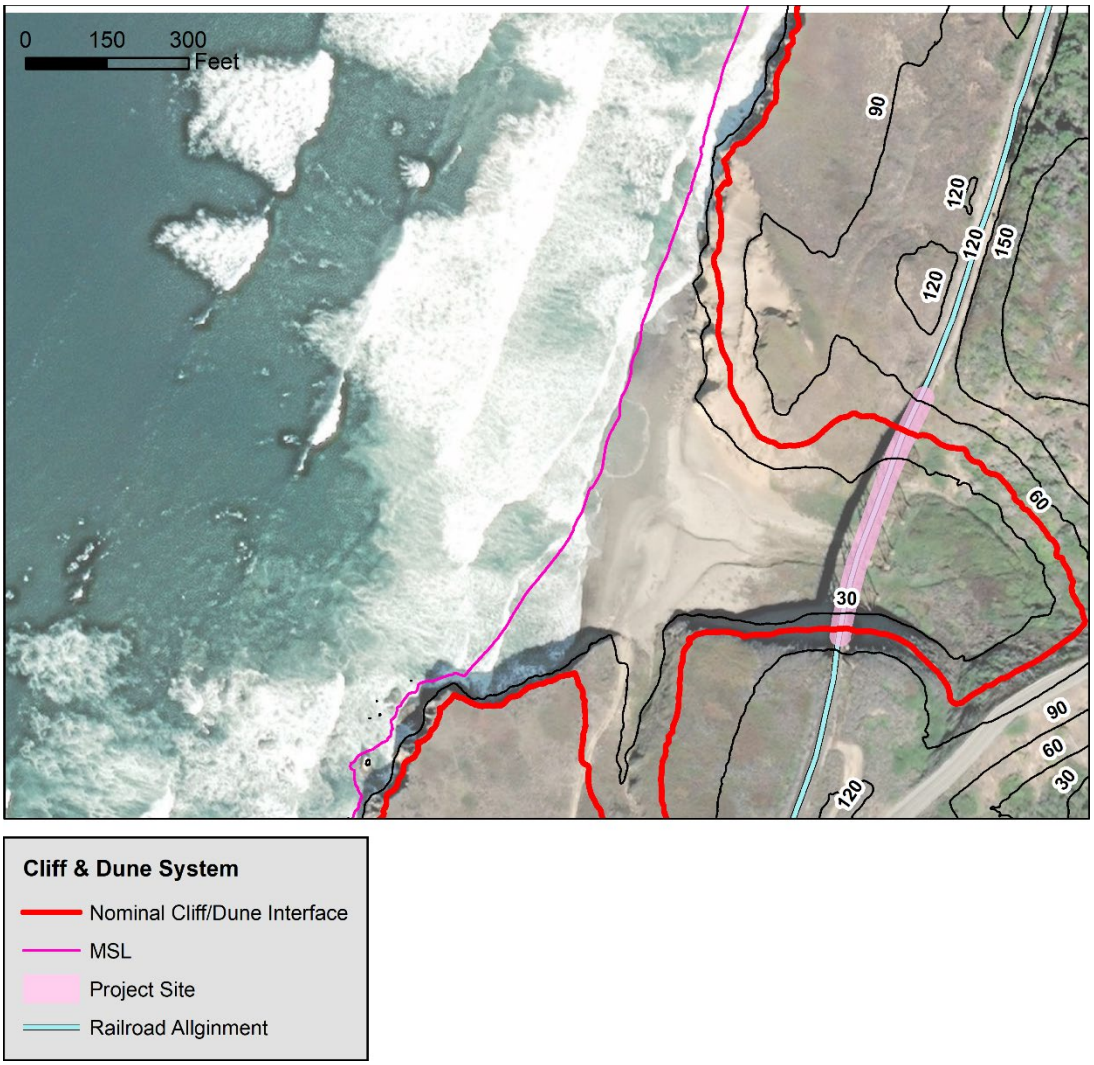


Figure 19. Dune (< 60 ft NAVD88) and Cliff (> 60 ft NAVD88) Erosion Hazard Zones near the Project Site

7.1. Dune Erosion Hazard Zones

Erosion is a result of both chronic changes in the shoreline because of sea level rise and episodic changes associated with major storm events. These two mechanisms were coupled in this analysis to provide a conversative upper bound of future shoreline change.

Long-term shoreline changes because of sea level rise were accounted for using the Bruun Rule, which adjusts the shoreline position landward as sea level rises. Episodic, short-term changes were then estimated using probabilistic methods to estimate the effect of an extreme event on this long-term adjusted profile. These two methods and their respective results are presented in this section.

7.1.1. Shoreline Response to Sea Level Rise

The Bruun Rule was used to predict the long-term shoreline response to sea level rise. The Bruun Rule is widely accepted as an approach to predict the chronic erosion of sandy shorelines due to sea level rise. The rule hypothesizes that as the sea level rises, the shoreface will respond by

moving landward and up relative to water level increase (Figure 20). The Bruun Rule is based on three assumptions:

- the underlying geology does not play a role in determining the shoreface shape
- shoreface sediment is moved only by waves
- there is no significant movement of sediment beyond the depth of closure

Bruun (1962) proposed that the retreat of the shoreline can be estimated assuming the amount of erosion on the upper part of the profile must equate to the amount of deposition on the lower part of the profile.

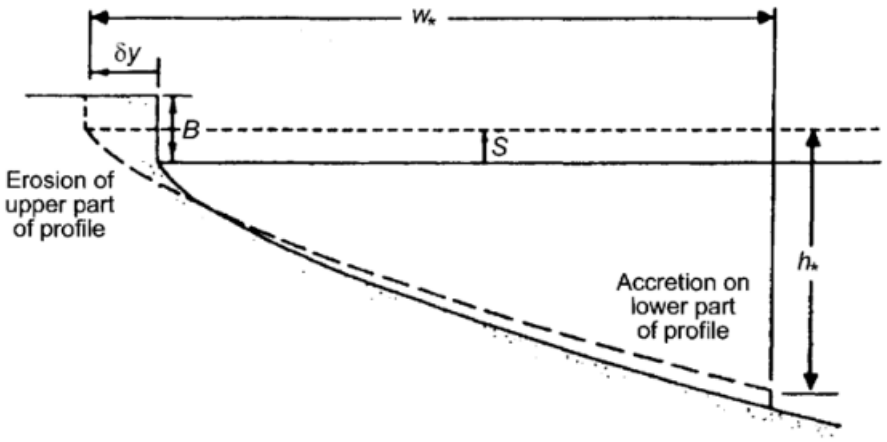


Figure 20. Shoreface response to rising sea level according to the Bruun (from Masselink et al. [2011]).

The amount of shoreline retreat (δ_y) can be estimated according to:

$$\delta_y = S\left(\frac{w_*}{h_* + B}\right) \tag{3}$$

where S is the rise in the sea level, w_* is the width of the shoreface, h_* is the depth of closure, and B is the berm height.

The Bruun Rule requires a baseline beach profile for the analysis. The resultant beach profile is shown in Figure 21. Bruun Rule parameters, such as the location and elevation of the berm and depth of closure, were derived from this profile. The depth of closure was estimated to be 36.2 feet NAVD88 according to methodology proposed in Hallermeier (1980).

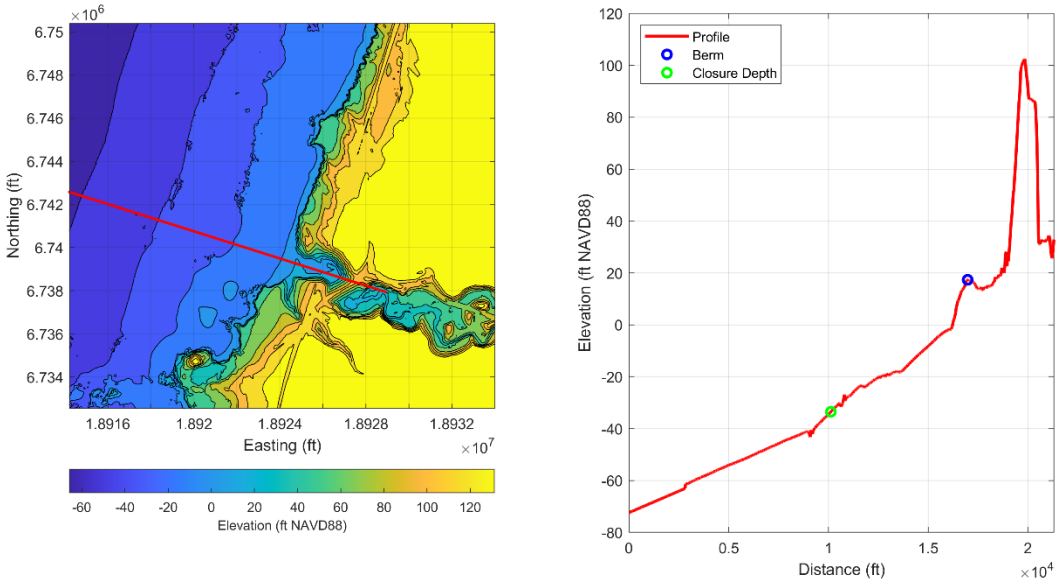


Figure 21. DEM and profile transect used to determine long-term profile recession.

Long-term mean shoreline position recession distances are given in Table 7 for the Project Site.

Table 7. Long-term profile recession (in feet) for the Project Site

Design Year	SLR Projection		
	Low	Medium-High	Extreme
2035	80.8	134.6	175.0
2050	134.6	242.3	349.9
2075	255.7	511.4	767.2
2125	538.9	1199.1	2020.9

These long-term recession rates represent the anticipated offset of the mean sea level contour from the 2018 DEM. The recession estimates for 2075 is 522.4 feet using the medium-high sea level rise estimate and 767.2 feet using the extreme sea level rise estimate. The extreme recession estimate for 2125 is 2020.9 feet and is beyond the walls of the dune system (suggesting primarily cliff-based erosion). Actual recession distances will likely be less than these estimates. The coastal cliffs that bound the Project Site to the north and south should provide some amount of sediment for the site that will help compensate for the profile response to sea level rise. These local sources are not accounted for in the Bruun model.

7.1.2. Shoreline Response to Extreme Events

Kriebel & Dean (1993) present an analytical approach to estimate the time-dependent beach and dune erosion due to severe coastal storms. The beach is modeled as a linear system, and the beach response is convolved with a time-dependent erosion-forcing function to obtain the time-dependent erosion response. Kriebel & Dean (1993) suggest the magnitude of the erosion response is then shown to be determined by:

- the equilibrium or maximum potential response that would occur if the beach could erode completely to the new equilibrium
- the characteristic erosion time scale that governs the exponential rate at which the profile responds toward this new equilibrium

The shoreline response to extreme events for the Project site were estimated using a Monte Carlo methodology (described in Section 7.1) and Kriebel & Dean (1993). Wave induced setup and infragravity induced shoreline water levels were included in the model as the static offset from mean sea level using Guza & Thornton (1981) and Stockdon et al. (2006), respectively. Note that sea level rise is assumed to have no impact on the storm induced shoreline response as the Bruun Rule suggests that the beach profile will response to sea level rise by shifting landward and up relative to the increase in water level.

Shoreline retreat distances due to extreme events are given in Table 8 for the Project Site.

Table 8. Storm erosion (in feet) for the Project Site

Design Year	Return Period (yr)			
	10	25	50	100
2025	53.1	60.3	66.0	71.6

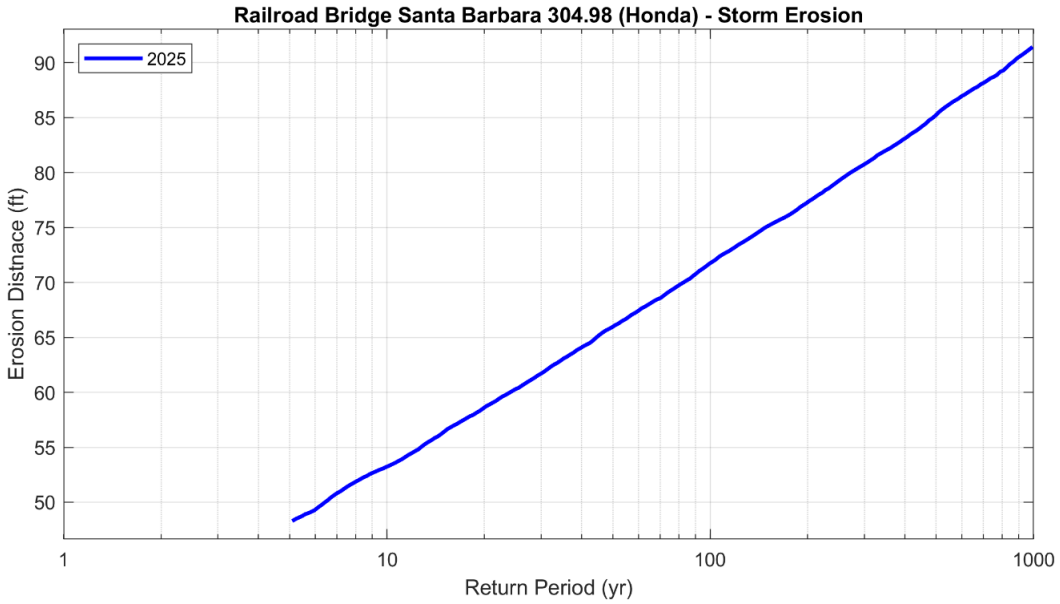


Figure 22. Storm erosion (in feet) for 2025 at the Project Site. (Note presented in log scale to present data, but 100-yr return period wave used for design.)

Like the long-term recession distances, the storm induced erosion represents the anticipated offset of the mean sea level contour from the 2018 DEM. The 50-yr and 100-year return period events for the 2025 design year are 66.0 feet and 71.6 feet, respectively.

7.1.3. Combined Shoreline Response

Projected long- and short-term recession distances from the above analysis were combined to derive a future worst-case shoreline erosion scenario over the Project's design life. The projected shoreline positions for the various extreme events for the 2075 planning horizon are shown in Table 9 based upon the 2018 mean sea level contour. The maximum projected shoreline recession to the 100-yr event is about 583.6 feet and 839.5 feet for the moderate-high and extreme sea level rise scenarios, respectively.

Table 9. Combined Shoreline Response (in feet) for the Project Site

Design Year	SLR Projection	Wave Return Period (yr)			
		10	25	50	100
2025	**Existing**	53.1	60.3	66.0	71.6
2035	**Low**	134.0	141.2	146.9	152.4
	Moderate-High	187.9	195.1	200.8	206.3
	Extreme	228.3	235.5	241.2	246.7
2050	**Low**	187.9	195.1	200.8	206.3
	Moderate-High	295.6	302.8	308.5	314.1
	Extreme	403.4	410.6	416.3	421.9
2075	**Low**	309.1	316.3	322.0	327.6
	Moderate-High	565.1	572.3	578.0	583.6
	Extreme	821.1	828.3	834.0	839.5
2125	**Low**	592.0	599.2	604.9	610.5
	Moderate-High	1252.2*	1259.4*	1265.1*	1270.7*
	Extreme	2074.1*	2081.3*	2087.0*	2092.5*

* Erosion distances outside of dune system.

These recession distances were offset from the baseline beach profile for the mean sea level shoreline position, as shown in Figure 23-25. The mean sea level contour represents the average water line; thus, would be an average of daily wetting and drying.

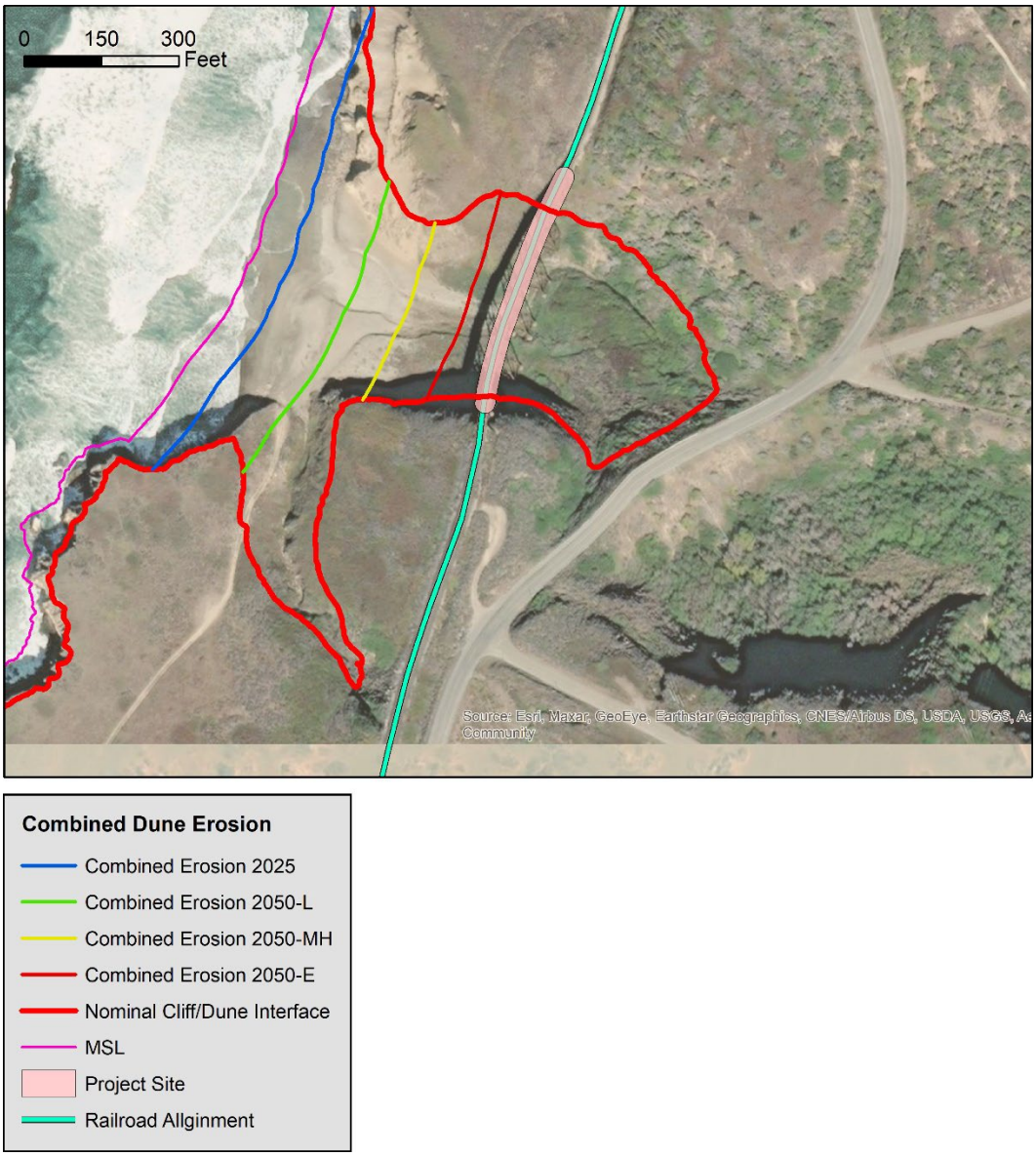


Figure 23. 100-yr return period combined erosion for 2025 and 2050 with CCC sea level rise projections.

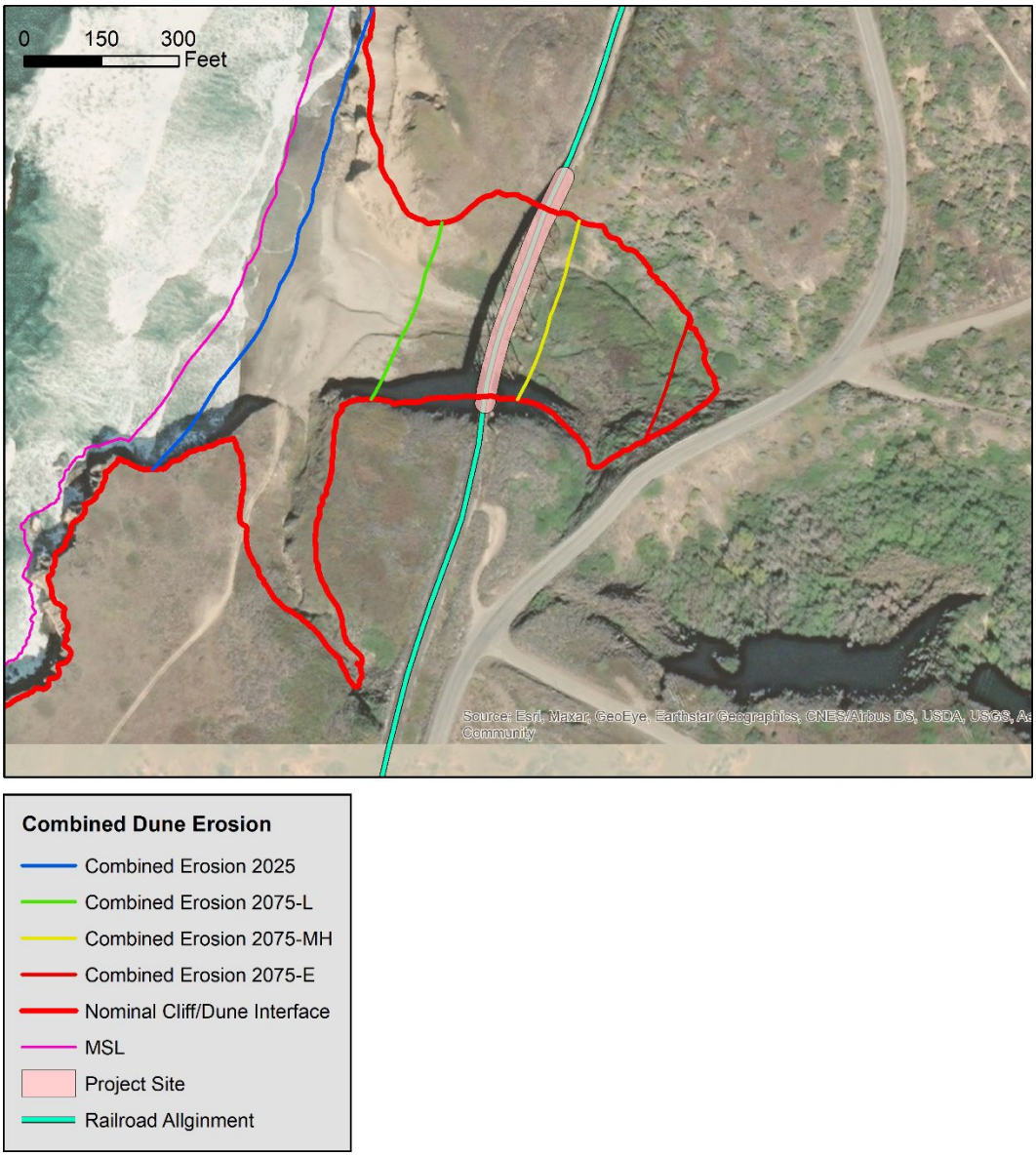


Figure 24. 100-yr return period combined erosion for 2025 and 2075 with CCC sea level rise projections .

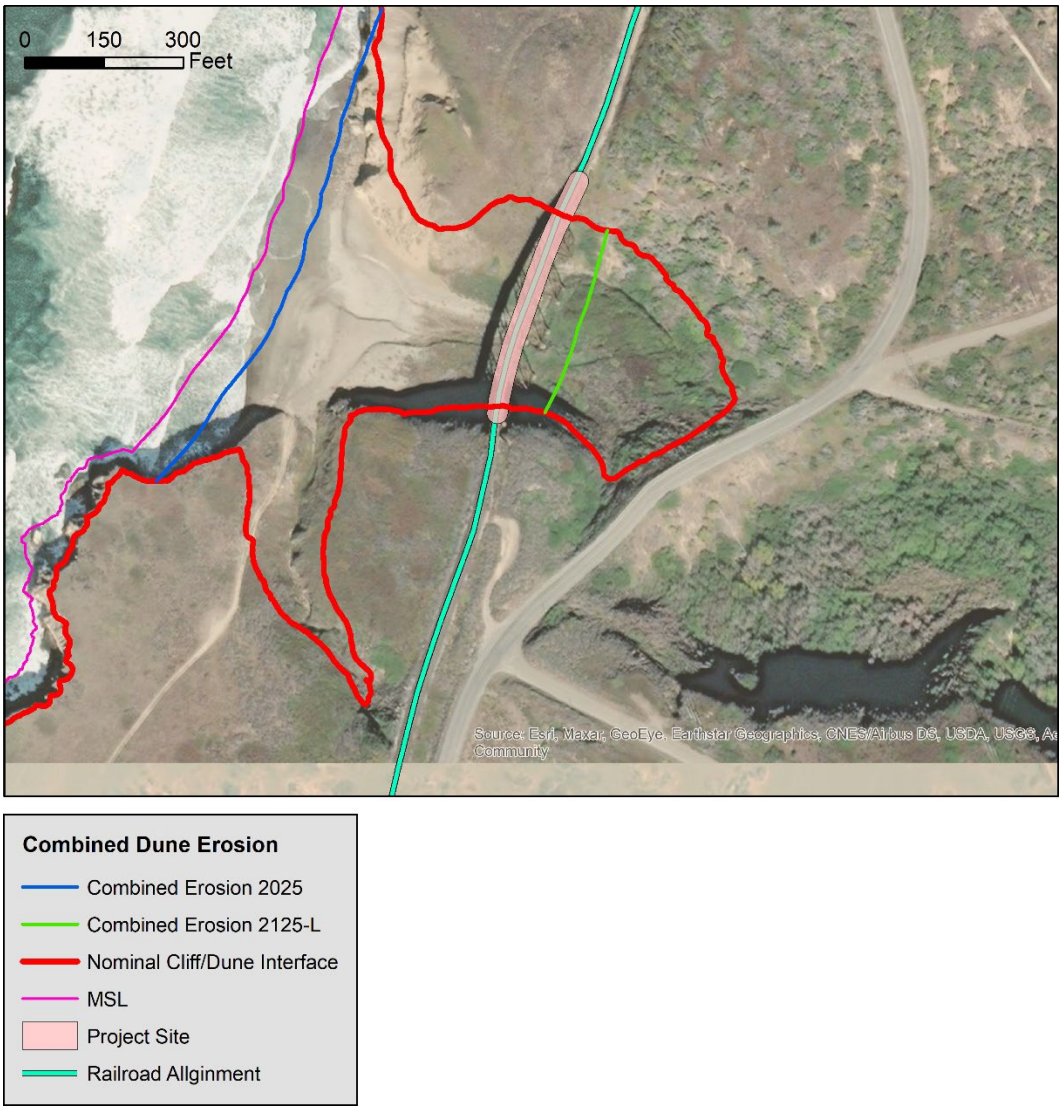


Figure 25. 100-yr return period combined erosion for 2025 and 2125 with CCC sea level rise projections. (Note: Medium-high and Extreme Sea Level Rise projections are beyond the dune system and therefore not plotted.)

The recession estimates for 2075 is 583.6 feet using the medium-high sea level rise estimate and 839.5 feet using the extreme sea level rise estimate. The maximum estimate for 2125 is 2092.5 feet. As discussed in Section 7.1.1, actual recession distances will likely be less than these estimates. The coastal cliffs that bound the Project Site to the north and south should provide some amount of sediment for the site that will help compensate for the profile response to sea level rise.

7.2. Cliff Response to Sea Level Rise

The Project Site is bounded by the north and south by coastal sea cliffs. Sections of the Pacific coast with rocky headlands or sea cliffs are not vulnerable to flooding but are susceptible to erosion (Heberger et al., 2009). According to California Coastal Commission (2018) there is no fully accepted methodology for estimating future bluff erosion with sea level rise.

Expected cliff erosion distances with respect to design year for the Project Site are given in Table 10 (and shown in Figure 26 and 27) using Santa Barbara County estimates of average and maximum expected cliff retreat from Heberger et al. (2009). The maximum expected cliff erosion for 2025, 2075 and 2125 is 56.0 feet, 455.6 feet and 855.2 feet, respectively.

Table 10. Expected Cliff Erosion (in feet) for Sea Cliffs near Project Site

Design Year	Average Cliff Erosion (ft)	Maximum Cliff Erosion (ft)
2025	15.3	56.0
2035	37.1	135.9
2050	69.8	255.8
2075	124.3	455.6
2125	233.3	855.3

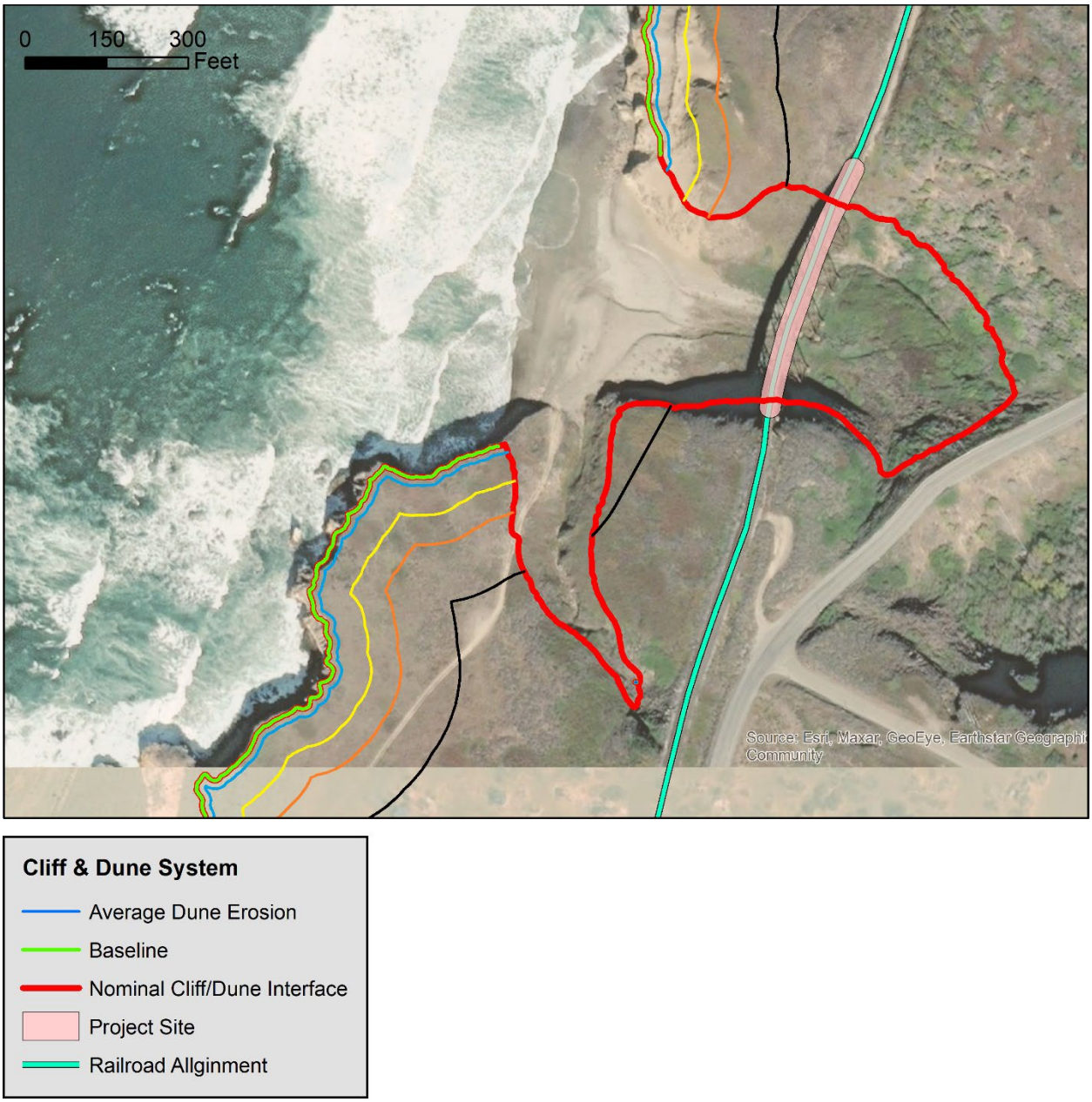


Figure 26. Average expected cliff erosion for 2025 (Blue Contour), 2050 (Yellow Contour), 2075 (Orange Contour) and 2125 (Black Contour).

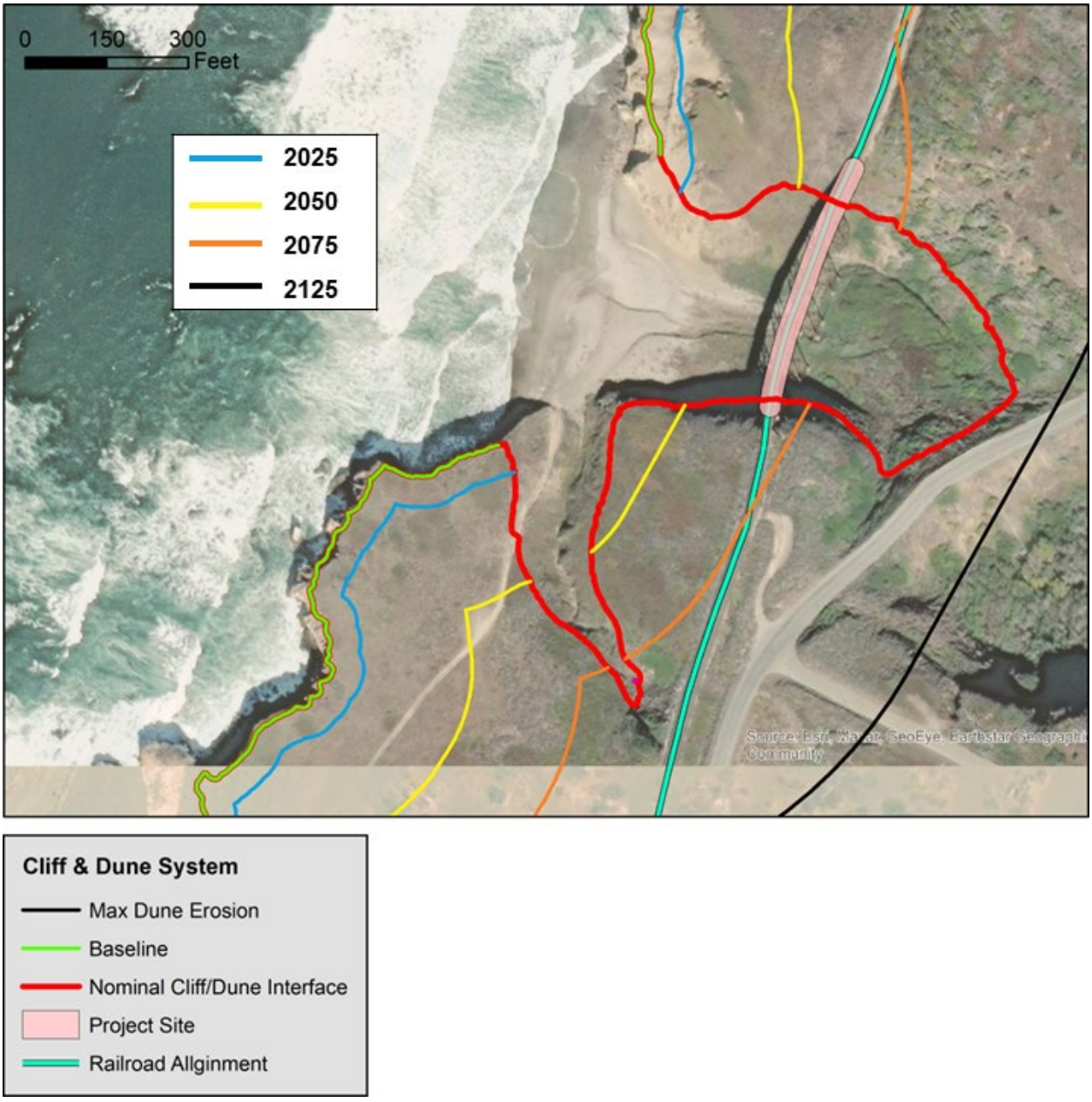


Figure 27. Maximum expected cliff erosion for 2025 (Blue Contour), 2050 (Yellow Contour), 2075 (Orange Contour) and 2125 (Black Contour).

The cliff erosion analysis indicates that the Project Site is within potentially vulnerability to cliff erosion near the end of the Project's expected service life. Although all average and most maximum contours are seaward of the Project Stie, the maximum estimate for 2075 suggests some vulnerability. The most extreme estimate in 2125 places the maximum cliff erosion beyond the existing canyon walls.

8. Vulnerability and Adaptation

8.1. Vulnerability

Hinkel & Nicholls (2020) define sea level rise accommodation as measures enacted to reduce the vulnerability of infrastructure to climate change. The uprush analysis indicates that flooding and inundation risk to the proposed Project is *low*. Bridge superstructure is well above the anticipated wave crest elevation. Adapting the Project design to accommodate impacts associated with flooding may include the following design concepts:

- **Foundation Design** - Increase pile diameters and embedment length to accommodate increased wave loading through the anticipated service life.

The erosion analysis indicates that the long-term dune erosion risk to the proposed Project is *moderate*. Adapting the Project design to accommodate impacts associated with dune and cliff erosion may include the following design concepts:

- **Foundation Design** - Increasing bridge pile lengths to compensate for anticipated foundation scour through the anticipated service life.
- **Hard Protection Solutions** - Bridge pier scour protection to mitigate scour.
- **Soft Protection Solutions** - Periodic nourishment could compensate for sea level rise induced beach loss.

8.2. Design Adaptation

Analysis indicates an increase in the cliff erosion risk near the end of service life in 2125. Looking at the most extreme runup and erosion estimates in 2125, the data suggest the bridge will remain resilient to wave impact. The bridge is deck is above the maximum wave runup elevations. There is some additional cliff erosion risk under the most maximum estimate.

The bridge foundations were upsized and lengthened during the design to accommodate additional scour and wave loads during the Project's service life. Cliff erosion will need to be monitored by UP to verify the erosion progression relative to the predicted erosion for Santa Barbara County.

9. Conclusion

HDR evaluated multiple alternatives for the replacement design of UP Bridge 304.88 Santa Barbara Subdivision. As part of this evaluation, existing and potential future coastal hazards that may impact these alternatives were assessed. The focus of this coastal hazard assessment provided an analysis of the Project Site's vulnerability to coastal flooding, tsunami inundation and erosion. HDR analyzed nearby water level, wave, and high-resolution topographic data to characterize the oceanographic environment for use in the coastal hazard assessment.

Runup elevations were based upon probabilistic hazard analysis that provides a means to incorporate natural uncertainties, model uncertainties and errors into the hazard assessment. The 100-year return period events for the 2025 design year are 24.8 feet NAVD88, which increases to 28.9-30.8 feet NAVD88 for the 2075 design year. For 2125 end of service life, 100-year return

period event wave runup is estimated at 33.7 to 39.8 feet NAVD88. Runup analysis indicates that the Project Site is within the coastal flood plain during the Project's projected service life.

Two classes of erosion are identified for the erosion analysis. Dune erosion hazard zones are defined as the coastal band subject to chronic and episodic erosion. Cliff hazard zones are characterized as high relief areas that are typically only subject to chronic sea level rise induced erosion. The approach for the dune analysis was comparable to the probabilistic runup analysis. The maximum projected shoreline recession during the 100-yr event is about 583.6 feet and 839.5 feet for the moderate-high and extreme sea level rise scenarios, respectively, in 2075. In 2125, dune erosion calculations for the 100-yr event increase beyond the existing cliffs for moderate-high and extreme (H++) estimates, which results in invalid distances for this type of erosion.

Expected cliff erosion distances with respect to design year for the Project Site were developed using Santa Barbara County estimates of average and maximum expected cliff retreat from Heberger et al. (2009). The maximum expected cliff erosion for 2025 is 56.0 feet, which increases to 455.6 for 2075. The cliff erosion analysis indicates that the Project Site is within potentially vulnerability to cliff erosion near the end of the Project's expected service life. Maximum cliff erosion in 2125 could exceed the existing Coast Rd embankment.

To accommodate future bridge resilience to sea level rise, the bridge foundations were upsized and lengthened during the design to accommodate additional scour and wave loads. Cliff erosion will need to be monitored by UP to verify the erosion progression relative to the predicted erosion for Santa Barbara County.

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APPENDIX P. HONDA CREEK 2D HYDRAULIC MODELING ANALYSIS FOR TEMPORARY CONSTRUCTION CONDITIONS (HDR, 5/17/2022)









Honda Creek 2D Hydraulic Modeling Analysis for Temporary Construction Conditions

Union Pacific Bridge 304.88 Santa Barbara

Vandenberg Space Force Base, California, USA

May 17, 2022

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Project Overview

Introduction and Background

Union Pacific Railroad (UP) is planning to replace the bridge located at Milepost (MP) 304.88 on the Santa Barbara Subdivision. The bridge spans Honda Creek and is located on Vandenberg Space Force Base (VSFB) in Santa Barbara County, California (Latitude: 34.60891 N, Longitude: 120.6356 W). The project location is shown in Figure 1.

The existing bridge is a 13-span, 540-foot-long deck plate girder (DPG) bridge. The existing bridge is being replaced with a 6-span, 540-foot-long DPG. As part of construction of the proposed bridge, a temporary construction crossing will be placed on the upstream and downstream sides of the existing bridge. This report documents the engineering analysis performed to evaluate the hydraulic impacts associated with the temporary construction crossing (temporary conditions). The hydraulic modeling used a two-dimensional (2-D) model and included analysis of existing conditions and temporary conditions during construction. A separate deliverable (UP Recommendation Form) was prepared on September 27, 2021, to document the existing site, the hydrologic analysis, the existing and proposed condition hydraulic analysis, and a preliminary permitting assessment.

Purpose

The purpose of the engineering analysis was to determine the hydraulic impacts of the temporary construction crossing and to inform the erosion protection design for the temporary construction crossing.

Horizontal and Vertical Datum

The horizontal datum used for the project is California State Plan V (NSRS2007), which is based on the North American Datum of 1983. The vertical datum used for the project is North American Vertical Datum of 1988 (NAVD88). All elevations are reported in feet NAVD88 unless otherwise noted.

Hydrology

The peak discharges were computed using the hydrologic simulation solver HEC-HMS, published by the US Army Corps of Engineers (USACE). The analyses investigated the 50 percent annual chance exceedance (ACE; 2-year), 20 percent ACE (5-year), 10 percent ACE (10-year), and 4 percent ACE (25-year) events. The following paragraph documents the parameters used in the HEC-HMS model.

The drainage area for Honda Creek at Bridge 304.88 is 11.85 square miles with a total flow length of 10.30 miles. The time of concentration was computed using the Natural Resources Conservation Service (NRCS) Technical Reference No. 55 methodology and was 3.03 hours, which indicates the time for water to flow from the top to the bottom of the basin. The drainage area has a composite Runoff Curve Number (CN) of 85 and was determined based on the 2019

National Land Cover Database and soils data obtained from the NRCS Web Soil Survey. The CN is an empirical parameter used to determine rainfall runoff losses to infiltration. The precipitation depths were determined from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Point Precipitation Frequency Estimates for California.

The peak discharges are shown in Table 1.

Table 1. HEC-HMS Peak Discharges

Storm Frequency	Annual Chance Exceedance (%)	Peak Discharge (cfs)
2-year	50	1,279
5-year	20	2,093
10-year	10	2,833
25-year	4	3,899

Hydraulic Model Development

Topographic Data

A digital terrain model (DTM) was developed as the elevation source for the 2-D model. The DTM was developed from Light Detection and Ranging (LiDAR) data that was obtained from the NOAA Digital Coast: Data Access Viewer. The LiDAR was part of the 2018 USGS [US Geological Survey] Lidar: Southern CA Wildfires Project. The data is of type QL1, meaning that eight data points were collected per square meter with 0.35-meter nominal point spacing. The dataset has a vertical accuracy of +/- 5.3 centimeters. The DTM created from the LiDAR data is shown in Figure 2. This dataset was modified to show key geometric features associated with the project and is explained further in this report.

Two-Dimensional Hydraulic Model

Numerical Solver

Version 6.1.0 of the computational hydraulic solver HEC-RAS, published by USACE, was used for this analysis. The HEC-RAS 2-D modeling algorithm solves non-linear shallow water equations, also known as St. Venant equations, using a finite-volume numerical scheme. The code can process wetting and drying of mesh elements, steady and unsteady flows, and sub-critical and super-critical flows.

The software allows for use of unstructured or structured computational meshes. A structured mesh consists of rectangular cells, and an unstructured mesh consists of irregular-shaped cells. A structured mesh is treated the same computationally as an unstructured mesh. This means that computational cells can be triangles, squares, rectangles, or elements that can have up to eight sides. This analysis used an unstructured mesh.

The time step is based on the Courant-Friedrichs-Lewy condition, commonly known as the Courant number. The Courant number is a dimensionless value representing the time a particle

stays in one cell of the mesh. The value must be lower than 1, and the model adjusts the time step such that the Courant number does not exceed 0.9.

The standard assumptions made in the formulation of a 2-D, depth-averaged hydraulic model are appropriate for this particular application. The assumptions include the following:

- The vertical velocity component of the velocity field is small.
- There is a hydrostatic pressure distribution.
- The width of the flow field is large compared to the depth.
- Velocity is not dependent on depth.

Model Extent and Computational Mesh

The model boundary extends approximately 0.34 mile (1,790 feet) upstream of Coast Road along the Honda Creek channel flowline and extends approximately 0.22 mile (1,150 feet) downstream of Coast Road along the Honda Creek flowline and outlets at the Pacific Ocean. The spatial extent of the model was set up to span the entire Honda Creek valley. The model domain has a total surface area of approximately 36.6 acres (0.06 square mile). The model domain is shown in Figure 3.

The existing conditions model cell mesh has a base cell size of 20 feet by 20 feet, with refinement regions along the channel and coastline with a cell size of 10 feet by 10 feet. Model cells can vary in size and shape at the model boundary locations and at areas where break lines are situated to define key terrain features and conveyance structures.

The temporary conditions model cell mesh matches the existing conditions model cell mesh with exception of the location of the temporary construction crossing, where cell sizes vary from 20 feet by 20 feet to 25 feet by 25 feet. This is necessary for model computational purposes to establish flow velocities over the contractor crossing.

Terrain Processing

As shown in Figure 2, a large sand dune created by ocean wave runup separates the outlet of Honda Creek from the Pacific Ocean. The daily baseflow from the creek seeps through the sand dune and does not cause any erosion of the sand dune. However, during larger storm events, the creek fills up and eventually overtops the sand dune. As water flows over the sand dune, shear stress from the discharge starts to erode the sand. Eventually, the sand will completely erode from the dune, creating a channel through the dune. The assumption made for this analysis is that a large enough channel will be eroded to convey the peak discharge. Therefore, a different size of channel was created for each frequency event. The width of the channel implied for each frequency event is shown in Table 2.

Table 2. Sand Dune Erosion Channel

Storm Frequency	Channel Width (ft)
2-year	50
5-year	80
10-year	110
25-year	150

For the existing conditions, the DTM was modified to include the foundations of the piers for the existing bridge. Only the foundations were included in the terrain modification because the water surface elevation (WSEL) does not exceed the top of the foundations under existing conditions. The final DTM for the existing conditions model is shown in raster hillshade format in Figure 4.

For the temporary conditions, the DTM was modified to include the piers from both the existing and proposed bridges. The DTM was also modified to incorporate the terrain that is proposed for the temporary construction crossing. The final DTM for the temporary conditions model is shown in raster hillshade format in Figure 5.

Roughness

Roughness coefficients, represented by Manning's n values, are used to account for energy friction losses of overland flow and/or channel flow. Manning's n values were assigned based on a combination of the 2019 National Land Cover Database and ArcMap Aerial Imagery. The reference used for assigning the actual value of the Manning's n value was Table 5-6 from Chow's *Open-Channel Hydraulics*. The Manning's n regions were divided into 10 regions and were assigned the values shown in Table 3. Figure 6 shows the Manning's n regions for the existing conditions model, and Figure 7 shows the Manning's n regions for the temporary conditions model.

Table 3. Manning's n Values

Description	Manning's n
Scattered brush – minimum	0.035
Scattered brush – minimum to normal	0.040
Scattered brush – normal	0.050
Scattered brush – normal to maximum	0.060
Scattered brush – maximum	0.070
Channel – light vegetation	0.025
Channel – heavy vegetation	0.050
Sand	0.020
Gravel road	0.025
Paved road	0.020
Temporary construction crossing	0.025

Note: The temporary construction crossing roughness value was incorporated into only the temporary conditions model.

Boundary Conditions

Model simulations were performed for the existing and temporary conditions using multiple quasi-steady-state discharges ranging from the 50 percent ACE (2-year) to the 4 percent ACE (25-year). External boundary conditions were applied at the upstream and downstream extents of the model as shown in Figure 3.

The upstream boundary condition is used to input an inflow hydrograph for the discharges that were shown in Table 1. The hydrograph starts at 100 cubic feet per second (cfs) for all simulations and ramps up to the peak discharge over a period of 3 hours. The peak discharge is held at a steady state for 6 hours before ramping down to 100 cfs for the final 3 hours.

The downstream boundary condition uses a normal-depth slope of 0.08 foot/foot, which is based on the slope of the terrain leading from the stream to the Pacific Ocean.

A downstream boundary condition dependent on tidal elevations was not investigated. The ground level at the model boundary is approximately 7 feet. Based on the Wave Uprush and Erosion Analysis Report written by HDR (2021) as part of the proposed bridge design, the Mean High Water Tide (elevation 4.54 feet) and the Mean Higher-High Water Tide (elevation 5.25 feet) would not reach the ground line at the model boundary. The Highest Observed Tide (elevation 7.57 feet) does exceed the ground line at the model boundary but was not investigated as a downstream boundary condition.

2-D Connections

In HEC-RAS, 2-D connections are used to define hydraulic structures within a 2-D flow area.

The existing conditions model includes one hydraulic structure at Coast Road. The existing structure is dual 13-foot-diameter corrugated metal pipes (CMP). Based on correspondence between UP and VSFB, replacement of the 13-foot-diameter CMPs is planned in the future and is proposed as slip-lined dual 10-foot-diameter high-density polyethylene pipes (HDPE). The estimated impacts of the Coast Road culvert replacement were simulated, and the results are discussed in the following section.

The temporary conditions model includes the addition of three hydraulic structures. The locations of these structures, including the existing Coast Road culvert, are shown in Figure 3, and Table 4 shows the quantity and size of the structures.

Table 4. Temporary Conditions Hydraulic Structures

Location	No. of Pipes	Diameter (ft)	Crest Elev. (ft)
Coast Road	2	10	98.8
Diversion Wall	1	2	26.0
Temporary Construction Crossing	6	6	25.0
Seawall	6	6	25.0

The diversion wall is placed to divert flows from the channel to the upstream side of the contractor crossing. The diversion wall includes a 2-foot-diameter pipe to allow low flows to be maintained in the channel for wildlife purposes. The temporary construction crossing provides a platform / working area for the construction of the proposed bridge. The temporary construction crossing includes six 6-foot-diameter pipes to allow for the conveyance of flows from Honda Creek. The seawall is used to protect the construction area from wave uprush from the Pacific Ocean. The seawall includes six 6-foot-diameter pipes through the wall to allow for conveyance of flows from Honda Creek. The openings in the seawall will include tide gates or a similar mechanism to not allow flows from wave uprush to pass through the seawall.

Scenarios and Results

Existing Conditions with Existing Culvert Through Coast Road

The first scenario represents existing conditions at the UP crossing with the existing dual 13-foot-diameter CMPs through Coast Road. Figures 8 through 15 show results in raster format for WSEL, depth, and velocity. Results are shown for only downstream of Coast Road. Similar results at locations of the temporary conditions hydraulic structures are shown in Tables 5 through 8. These results are taken at the existing channel centerline.

Table 5. Existing Conditions with Existing Coast Road Culvert for 2-Year Event

Location	WSEL (ft)	Depth (ft)	Velocity (fps)
Upstream face of diversion wall	21.6	7.7	10.1
Upstream of contractor crossing	18.4	5.1	11.7
Top of contractor crossing, upstream side	18.3	5.5	10.4
Top of contractor crossing, downstream side	15.1	4.2	9.5
Downstream of contractor crossing	14.5	3.8	9.3
Upstream face of seawall	13.1	2.8	9.4
Downstream of seawall	12.9	2.8	9.8

Table 6. Existing Conditions with Existing Coast Road Culvert for 5-Year Event

Location	WSEL (ft)	Depth (ft)	Velocity (fps)
Upstream face of diversion wall	23.2	9.3	11.7
Upstream of contractor crossing	19.2	5.9	13.6
Top of contractor crossing, upstream side	19.4	6.6	12.2
Top of contractor crossing, downstream side	16.2	5.3	10.8
Downstream of contractor crossing	15.7	5.0	10.3
Upstream face of seawall	13.7	3.4	11.7
Downstream of seawall	13.5	3.4	12.0

Table 7. Existing Conditions with Existing Coast Road Culvert for 10-Year Event

Location	WSEL (ft)	Depth (ft)	Velocity (fps)
Upstream face of diversion wall	24.1	10.2	12.7
Upstream of contractor crossing	20.1	6.8	14.4
Top of contractor crossing, upstream side	20.0	6.3	13.1
Top of contractor crossing, downstream side	16.8	5.9	11.7
Downstream of contractor crossing	16.5	5.8	11.0
Upstream face of seawall	14.1	3.8	13.0
Downstream of seawall	13.9	3.8	13.5

Table 8. Existing Conditions with Existing Coast Road Culvert for 25-Year Event

Location	WSEL (ft)	Depth (ft)	Velocity (fps)
Upstream face of diversion wall	25.0	11.1	13.7
Upstream of contractor crossing	20.6	7.3	15.0
Top of contractor crossing, upstream side	20.8	8.0	13.8
Top of contractor crossing, downstream side	17.6	6.7	12.8
Downstream of contractor crossing	17.3	6.6	12.1
Upstream face of seawall	14.7	4.4	14.2
Downstream of seawall	14.4	4.3	14.8

Temporary Conditions with Future Culvert Through Coast Road

The second scenario represents the temporary conditions and the future planned dual 10-foot-diameter HDPEs through Coast Road. Figures 16 through 23 show results in raster format for WSEL, depth, and velocity. Results are shown for only downstream of Coast Road. The same results at locations of the temporary conditions hydraulic structures are shown in Table 9 through 12. These results are taken at the centerline of the hydraulic structures. This differs from the existing conditions results in Tables 5 through 8 because the flow distribution is modified due to the placement of the hydraulic structures.

Table 9. Temporary Conditions with Future Coast Road Culvert for 2-Year Event

Location	WSEL (ft)	Depth (ft)	Velocity (fps)
Upstream face of diversion wall	26.8	12.9	9.6
Upstream of contractor crossing	23.7	10.4	1.8
Top of contractor crossing, upstream side	-	-	-
Top of contractor crossing, downstream side	-	-	-
Downstream of contractor crossing	18.5	7.8	2.7
Upstream face of seawall	18.2	7.9	10.0
Downstream of seawall	13.3	3.2	8.2

Table 10. Temporary Conditions with Future Coast Road Culvert for 5-Year Event

Location	WSEL (ft)	Depth (ft)	Velocity (fps)
Upstream face of diversion wall	27.9	14.0	8.0
Upstream of contractor crossing	26.7	13.4	1.8
Top of contractor crossing, upstream side	26.6	1.6	2.3
Top of contractor crossing, downstream side	26.6	1.6	6.3
Downstream of contractor crossing	21.9	11.2	1.5
Upstream face of seawall	21.7	11.4	13.0
Downstream of seawall	14.0	3.9	9.6

Table 11. Temporary Conditions with Future Coast Road Culvert for 10-Year Event

Location	WSEL (ft)	Depth (ft)	Velocity (fps)
Upstream face of diversion wall	28.7	14.8	8.0
Upstream of contractor crossing	27.6	14.3	1.9
Top of contractor crossing, upstream side	27.6	2.6	3.8
Top of contractor crossing, downstream side	27.5	2.5	8.4
Downstream of contractor crossing	25.1	14.4	1.2
Upstream face of seawall	25.1	14.8	15.2
Downstream of seawall	14.8	4.7	10.2

Table 12. Temporary Conditions with Future Coast Road Culvert for 25-Year Event

Location	WSEL (ft)	Depth (ft)	Velocity (fps)
Upstream face of diversion wall	29.4	15.5	9.1
Upstream of contractor crossing	28.2	14.9	2.4
Top of contractor crossing, upstream side	28.1	3.1	4.7
Top of contractor crossing, downstream side	28.0	3.0	9.9
Downstream of contractor crossing	25.7	15.0	3.0
Upstream face of seawall	25.4	15.1	13.9
Downstream of seawall	15.4	5.3	12.3

The 2-D model provides depth-averaged velocity results; therefore, the velocities at the downstream face of the temporary conditions hydraulic structures can be underestimated due to the overtopping of the structures. Outlet velocities for the hydraulic structures are provided in Table 13. HEC-RAS has limitations on providing pipe outlet velocities in 2-D hydraulic models. Therefore, pipe outlet velocities were determined using the Federal Highway Administration's (FHWA) HY-8, version 7.6 hydraulic modeling tool, based on output from the 2-D hydraulic model. Upstream and downstream WSELs and culvert parameters were input into HY-8 to determine culvert outlet velocity, as listed in Table 13.

Table 13. Temporary Conditions Pipe Outlet Velocities (feet per second)

Storm Frequency	Temporary Crossing	Diversion Wall	Seawall
2-year	7.5	10.2	10.7
5-year	8.4	7.5	13.7
10-year	5.5	6.9	16.3
25-year	5.6	7.5	16.9

Existing Conditions with Future Culvert Through Coast Road

A third scenario was executed with the existing conditions and future dual 10-foot-diameter HDPEs through Coast Road. This scenario was completed to provide a baseline condition from which to gage the impacts of the temporary conditions at Coast Road. Tables 14 through 17 provide WSEL results at the upstream and downstream faces of the Coast Road culvert for each scenario executed. Similar to the temporary conditions hydraulic structures, pipe outlet velocities were computed using FHWA HY-8.

Table 14. Impacts at Coast Road for 2-Year Event

Scenario	Upstream WSEL (ft)	Downstream WSEL (ft)	Downstream Outlet Velocity (fps)
Existing conditions, dual 13-ft-dia. CMP	25.1	23.2	6.0
Existing conditions, dual 10-ft-dia. HDPE	26.3	23.2	9.6
Temporary conditions, dual 10-ft-dia. HDPE	29.3	26.9	8.1

Table 15. Impacts at Coast Road for 5-Year Event

Scenario	Upstream WSEL (ft)	Downstream WSEL (ft)	Downstream Outlet Velocity (fps)
Existing conditions, dual 13-ft-dia. CMP	28.3	25.2	8.3
Existing conditions, dual 10-ft-dia. HDPE	31.4	25.2	13.3
Temporary conditions, dual 10-ft-dia. HDPE	34.2	28.1	13.3

Table 16. Impacts at Coast Road for 10-Year Event

Scenario	Upstream WSEL (ft)	Downstream WSEL (ft)	Downstream Outlet Velocity (fps)
Existing conditions, dual 13-ft-dia. CMP	31.6	26.4	10.7
Existing conditions, dual 10-ft-dia. HDPE	37.4	26.4	18.0
Temporary conditions, dual 10-ft-dia. HDPE	40.1	29.1	18.0

Table 17. Impacts at Coast Road for 25-Year Event

Scenario	Upstream WSEL (ft)	Downstream WSEL (ft)	Downstream Outlet Velocity (fps)
Existing conditions, dual 13-ft-dia. CMP	36.7	27.8	14.7
Existing conditions, dual 10-ft-dia. HDPE	46.8	27.6	24.8
Temporary conditions, dual 10-ft-dia. HDPE	50.4	30.0	24.8

Discussion

As previously mentioned, the purpose of this analysis was to determine the hydraulic impacts of the temporary construction crossing and to inform the erosion protection design for the temporary construction crossing.

The hydraulic structures modeled for the temporary construction crossing increase WSELs, as expected. Table 18 documents the changes in WSEL between existing conditions and temporary conditions.

Table 18. Changes in Water Surface Elevation (feet), Existing Conditions vs. Temporary Conditions

Location	2-Year	5-Year	10-Year	25-Year
Upstream face of diversion wall	5.2	4.7	4.6	4.4
Upstream of contractor crossing	5.3	7.5	7.5	7.6
Top of contractor crossing, upstream side	-	7.2	7.6	7.3
Top of contractor crossing, downstream side	-	10.4	10.7	10.4
Downstream of contractor crossing	4.0	6.2	8.6	8.4
Upstream face of seawall	5.1	8.0	11.0	10.7
Downstream of seawall	0.4	0.5	0.9	1.0

Although a large portion of flows are diverted from the channel to the west (left side) of the diversion wall, a portion of the flows overtop the diversion wall for all events investigated and continue to flow down the channel. High velocities are observed at the upstream and downstream sides of the diversion wall, indicating the need for erosion protection on the upstream and downstream sides.

The temporary contractor crossing is overtopped for events that exceed the 2-year event. High velocities are observed over the contractor crossing as flows transition from the top of the crossing to the downstream slope. It is recommended that erosion protection measures be implemented on the top of the crossing and on the downstream slope. Velocities are not as high on the upstream side; however, turbulence created as flows encounter the upstream face of the crossing is expected to cause erosion. Therefore, erosion protection measures should be placed on the upstream face of the crossing. High velocities are also observed at the outlets of the temporary contractor crossing pipes and should have adequate erosion protection measures.

The seawall is overtopped for events that exceed the 5-year event. High velocities are observed at the upstream and downstream sides of the seawall, indicating the need for erosion protection on the upstream and downstream sides.

Erosion protection measures should be designed with a level of uncertainty applied to the design velocities, also known as a factor of safety to the design. The chosen level of factor of safety is at the discretion of the contractor.

This report does not provide recommendations for erosion protection at Coast Road because this area is not being modified by the design of the temporary conditions. However, this analysis did investigate the hydraulic impacts of the future planned replacement of the Coast Road culvert and the hydraulic impacts of the temporary conditions on the future planned Coast Road culvert.

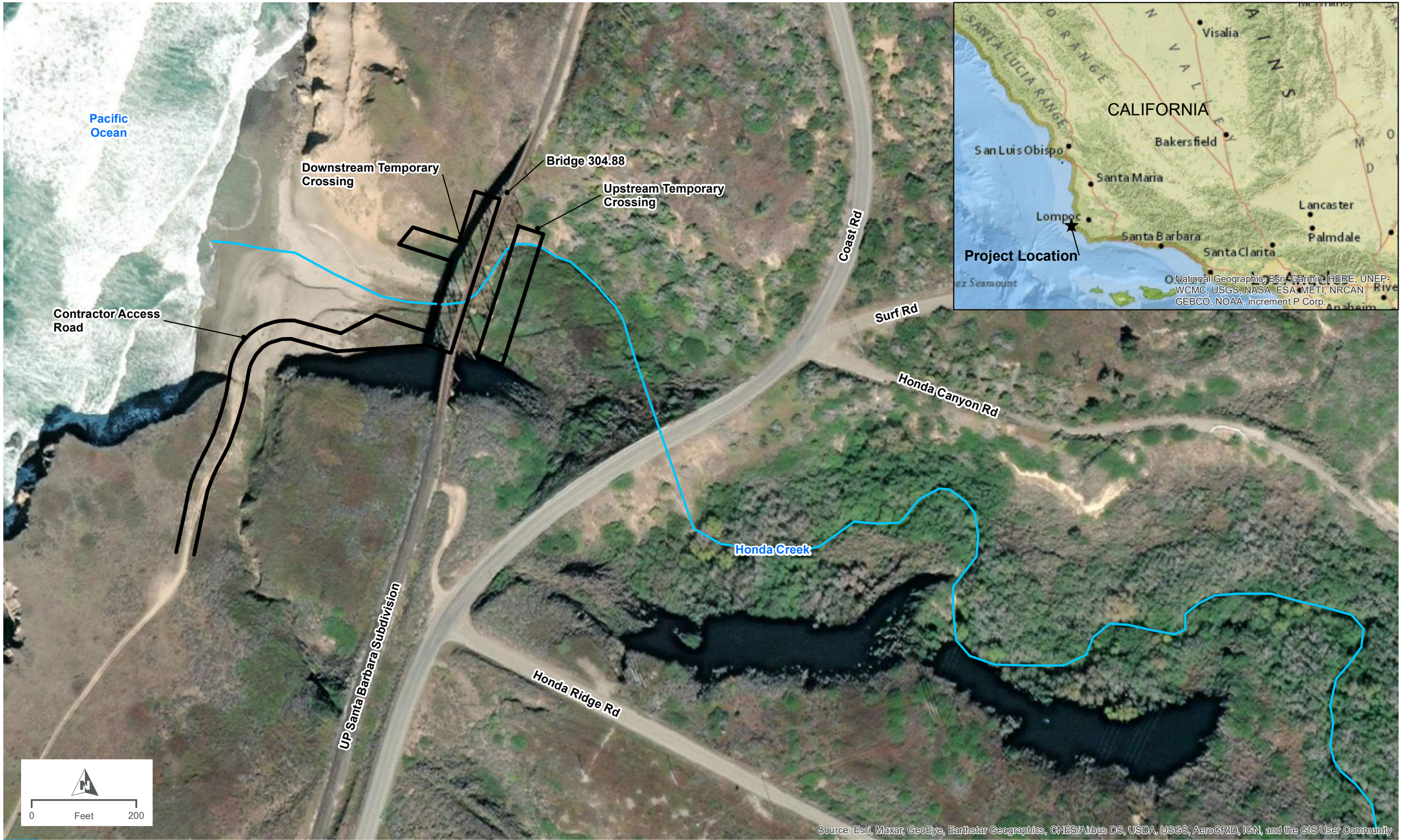
As previously mentioned, the existing dual 13-foot-diameter CMP through Coast Road is being replaced in the future with dual 10-foot-diameter HDPEs. As shown in Tables 14 through 17, the replacement of the culvert causes large changes in head elevations at the upstream side of the culvert and in the pipe outlet velocities.

Also shown in Tables 14 through 17 are increases in WSELs on the downstream and upstream sides of the culvert caused by the temporary conditions. However, the pipe outlet velocities are not anticipated to be impacted by these changes in WSEL.

References

1. HEC-RAS (2022). River Analysis System. HEC-RAS 2D User's Manual. Version 6.0. US Army Corps of Engineers, Hydrologic Engineering Center.

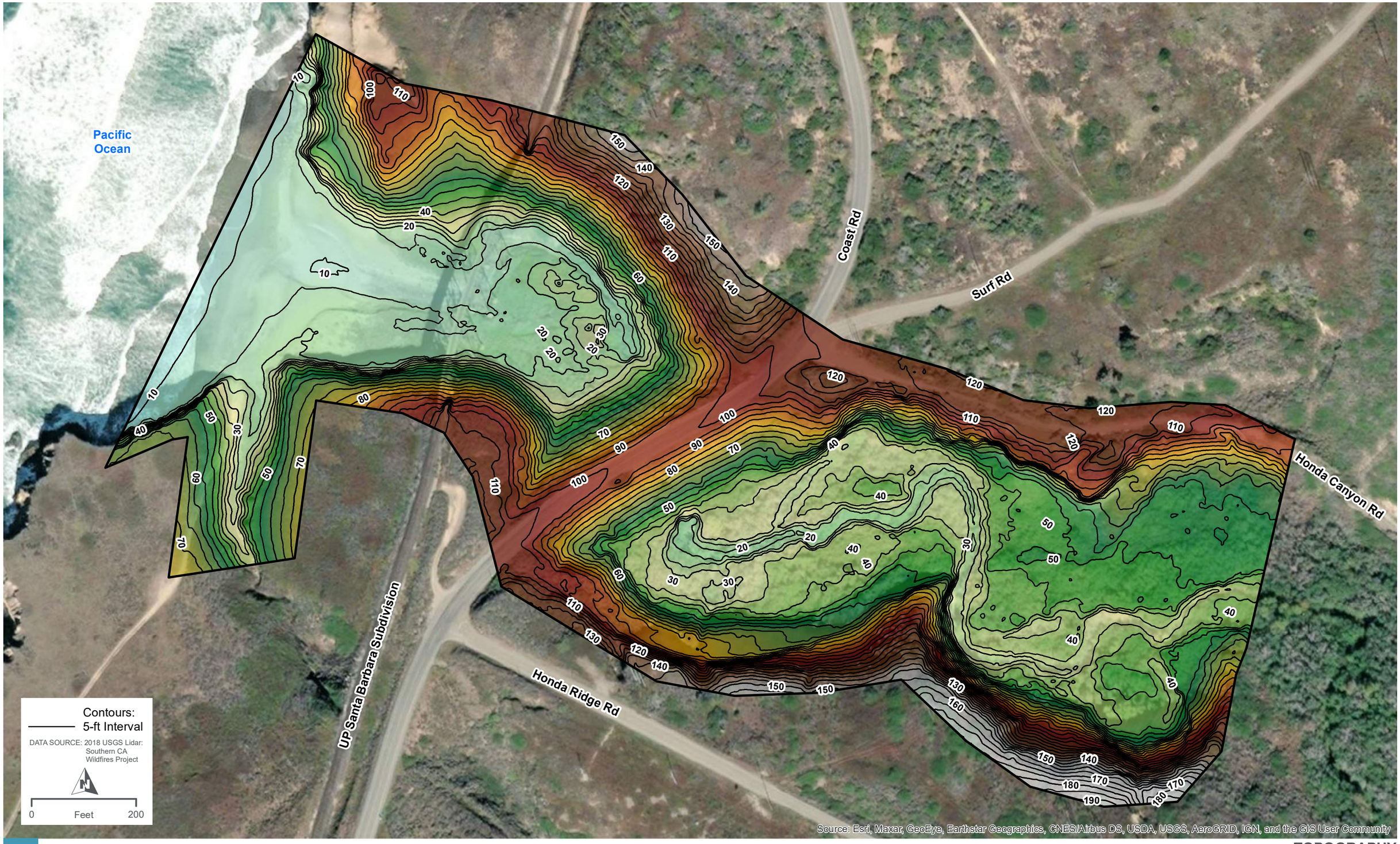
2. Chow (1988). *Open-Channel Hydraulics*. McGraw-Hill Book Company.



PROJECT LOCATION MAP

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

FIGURE 1



TOPOGRAPHY

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

FIGURE 2



MODEL DOMAIN

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

FIGURE 3

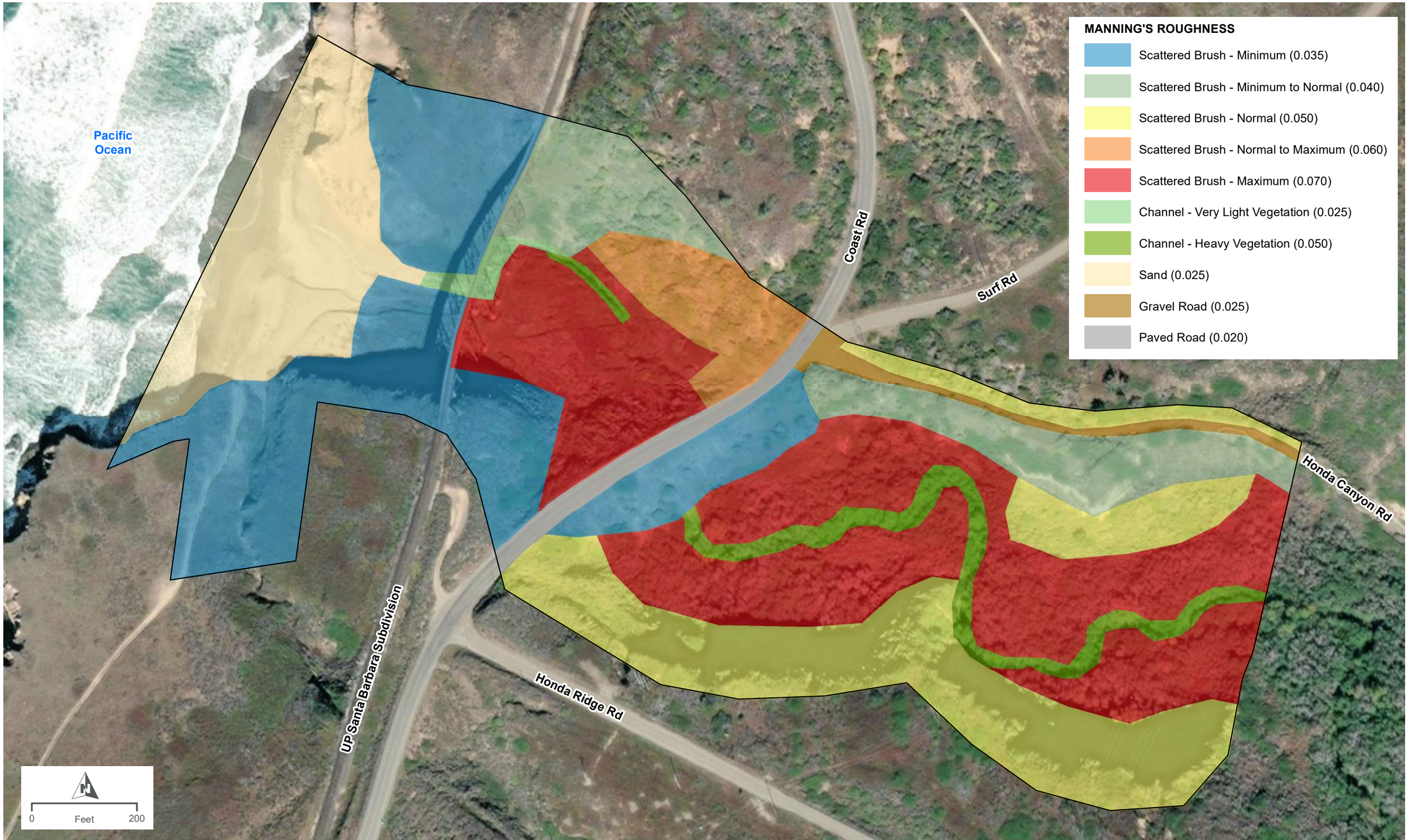


EXISTING CONDITIONS DIGITAL TERRAIN MODEL

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

FIGURE 4

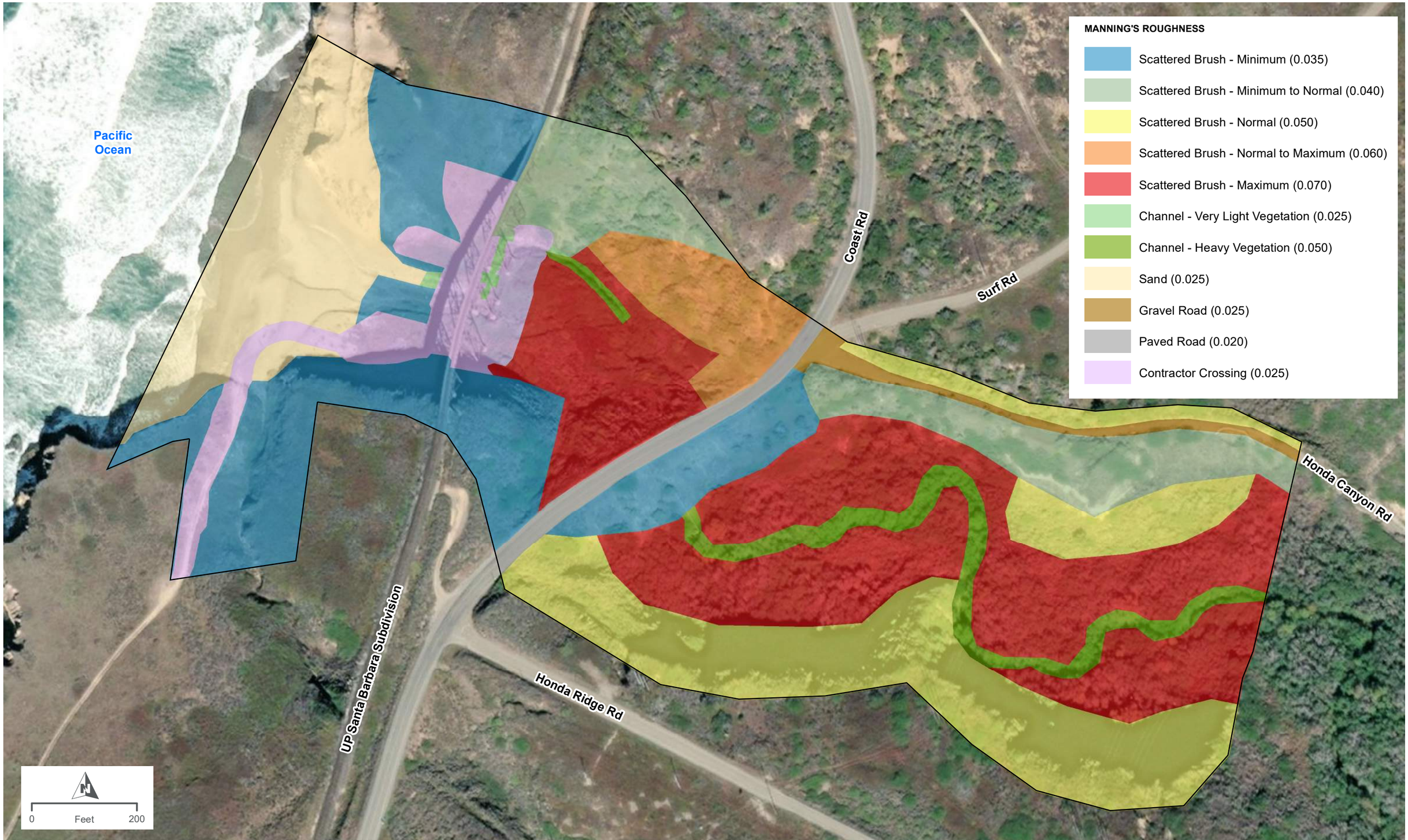

Eroded Sand Dune
(width varies for each
frequency event)
Temporary Construction
Crossing
Model Domain
Proposed Bridge
Pier Foundations
Existing Bridge
Pier Foundations
Surf Rd
Honda Canyon Rd
UP Santa Barbara Subdivision
Coast Rd
Honda Ridge Rd
200 ft



EXISTING CONDITIONS ROUGHNESS

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

FIGURE 6



TEMPORARY CONDITIONS ROUGHNESS

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

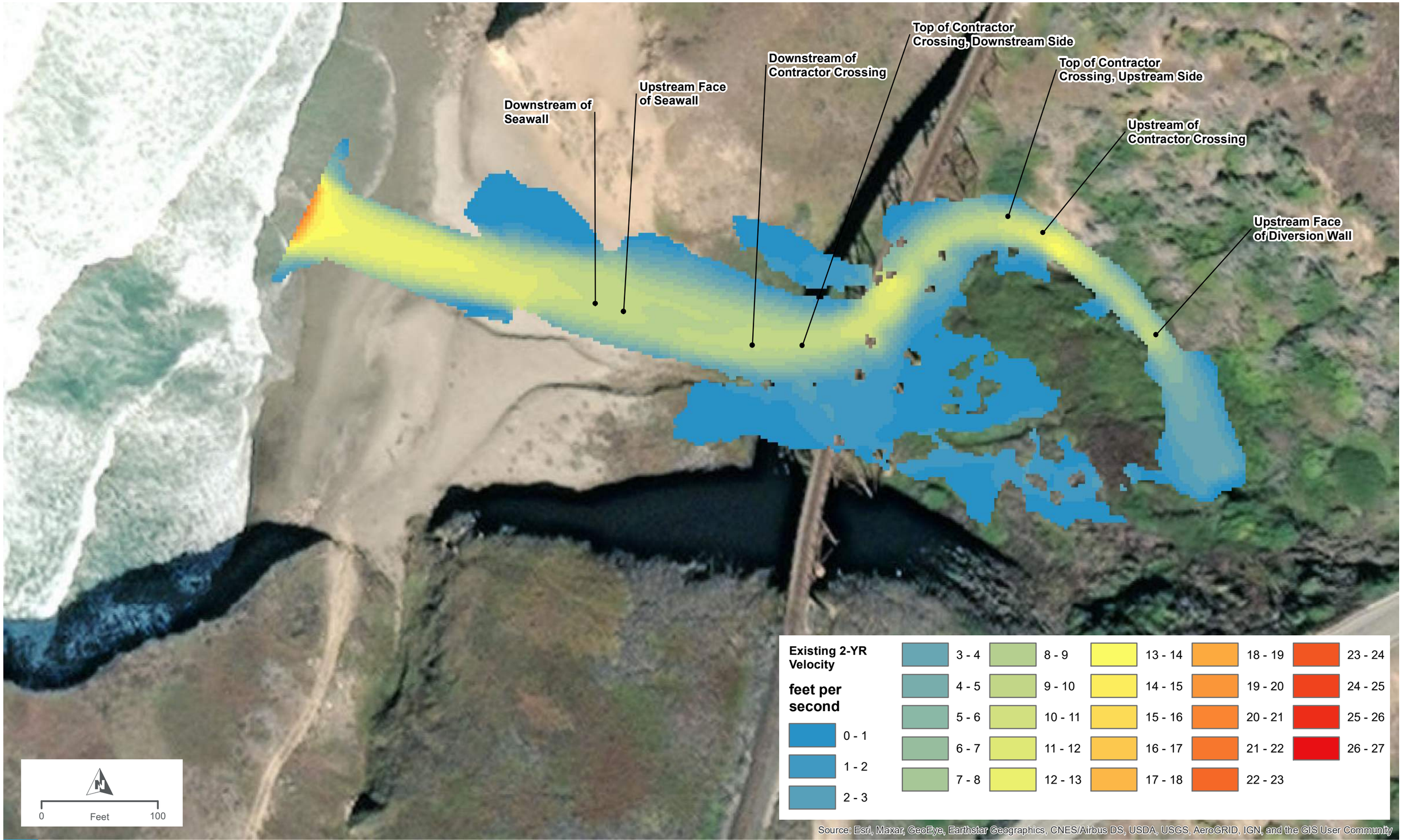
FIGURE 7



EXISTING CONDITIONS 2-YEAR DEPTH AND WATER SURFACE ELEVATION

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

FIGURE 8

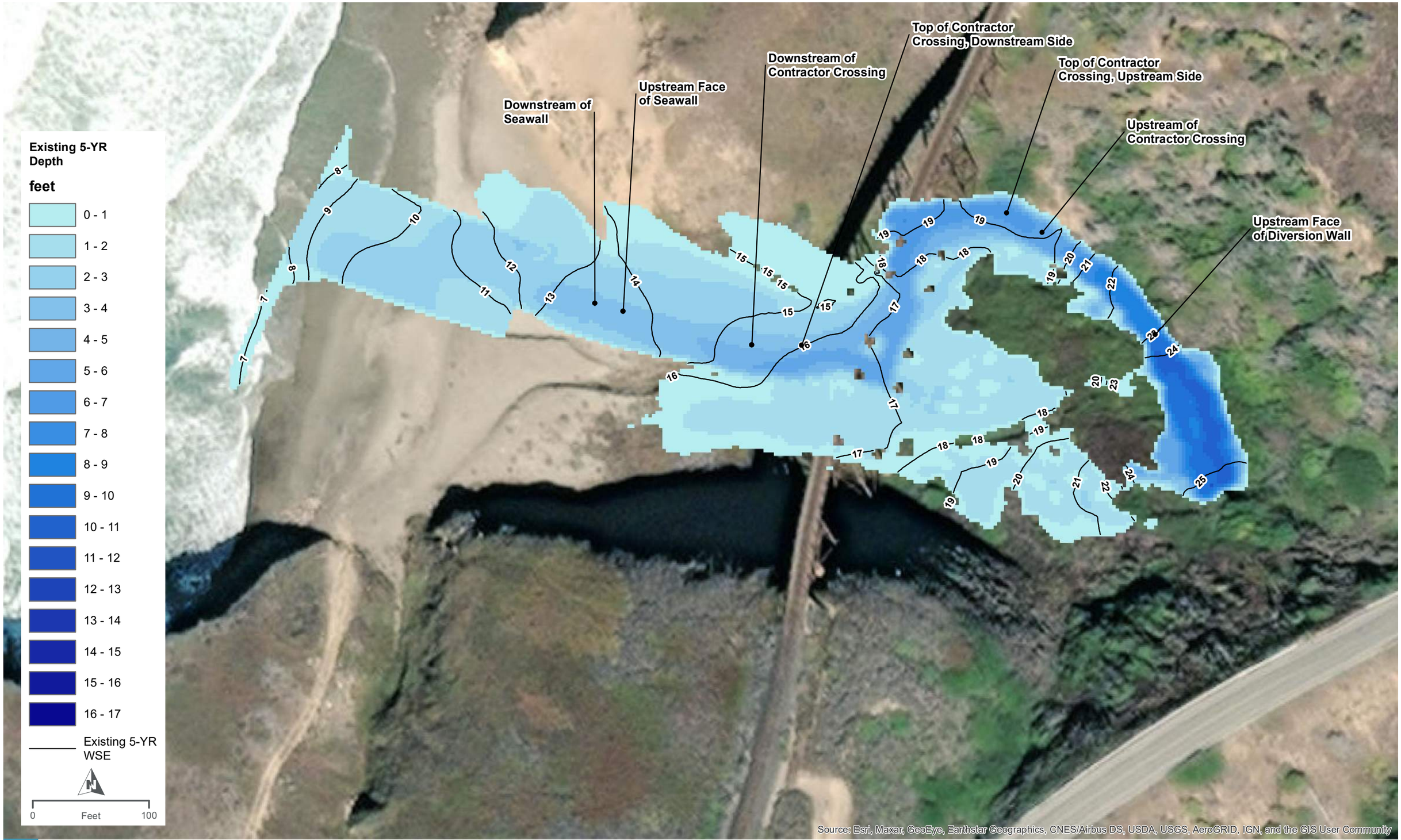


HDR

EXISTING CONDITIONS 2-YEAR VELOCITY

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

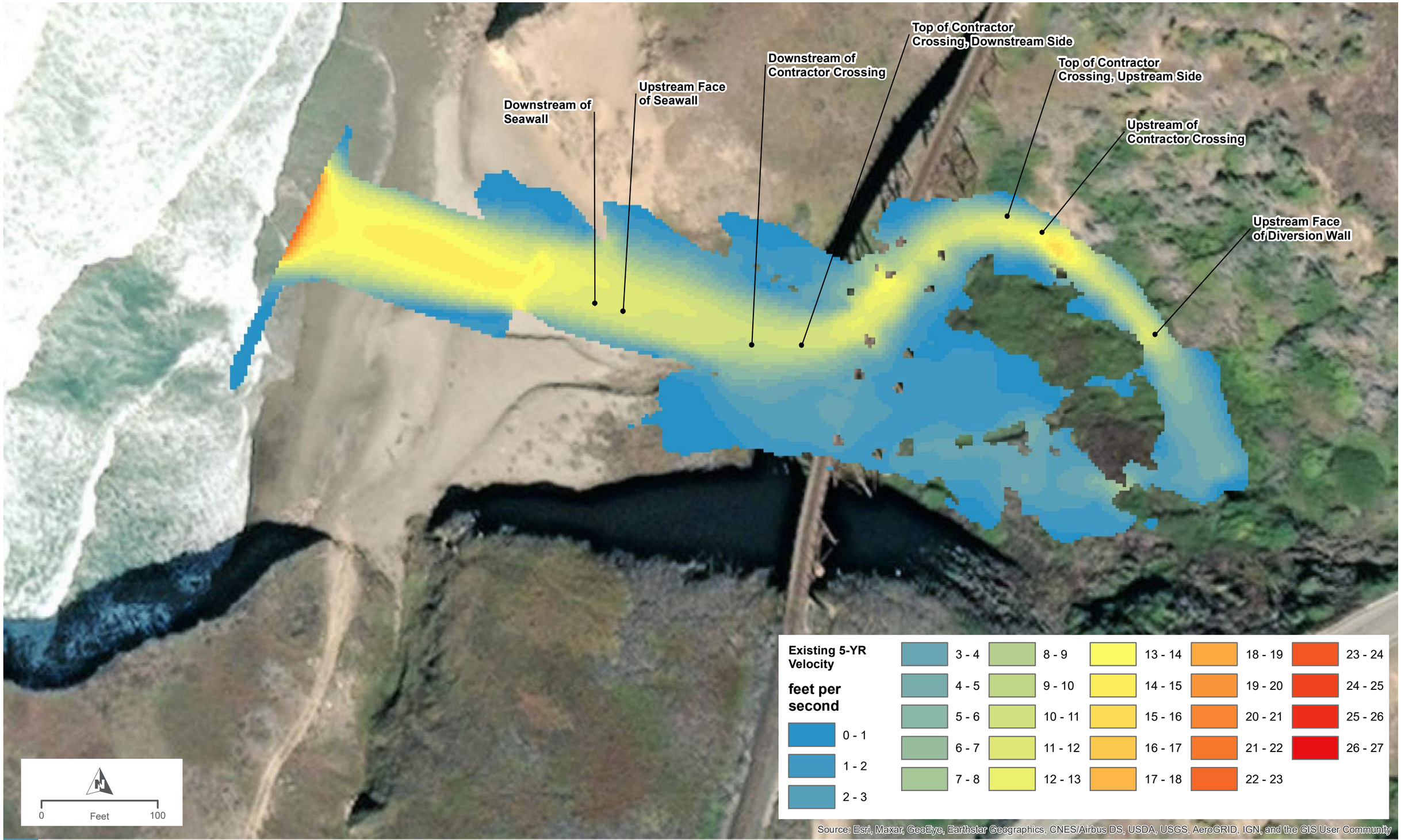
FIGURE 9



EXISTING CONDITIONS 5-YEAR DEPTH AND WATER SURFACE ELEVATION

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

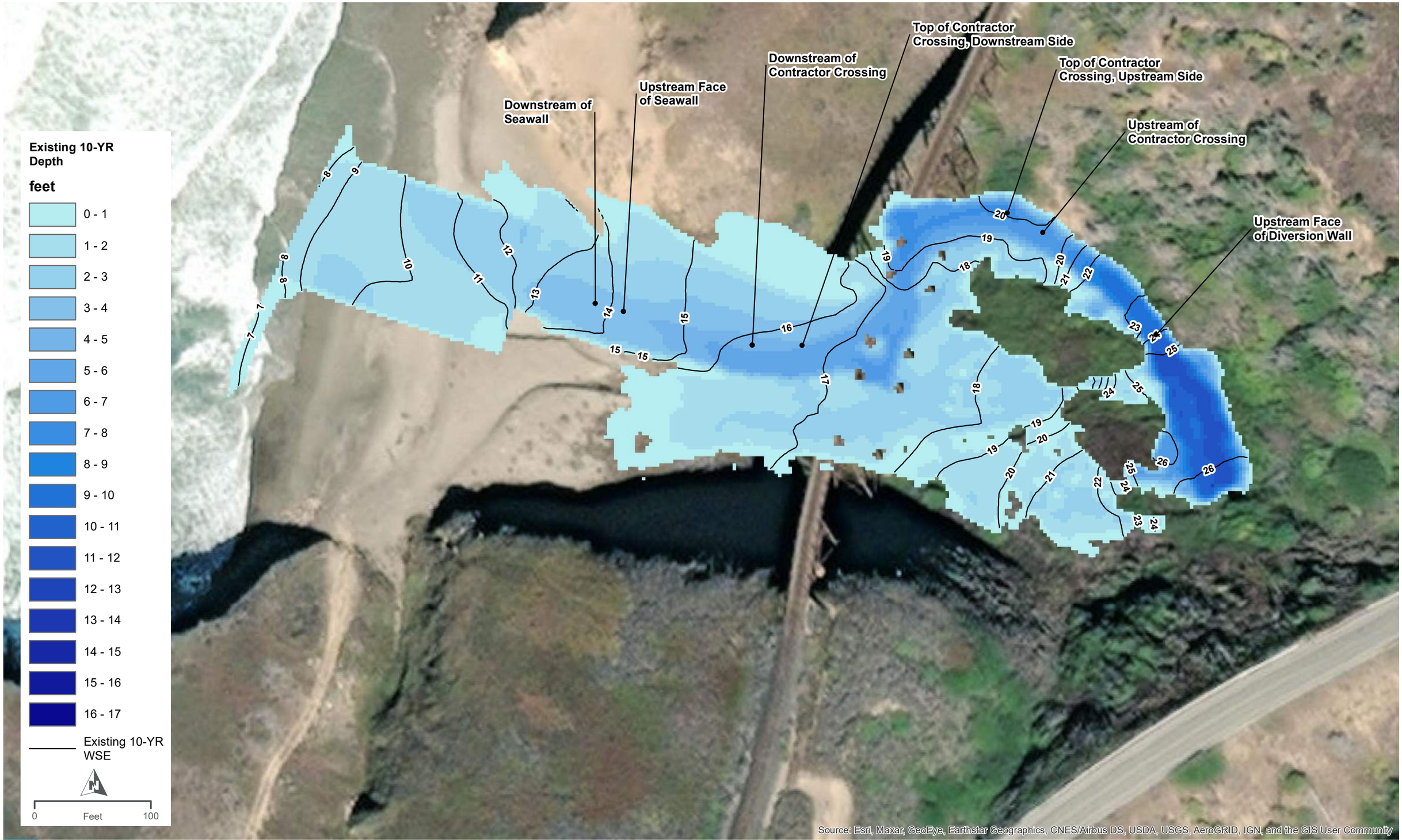
FIGURE 10



EXISTING CONDITIONS 5-YEAR VELOCITY

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

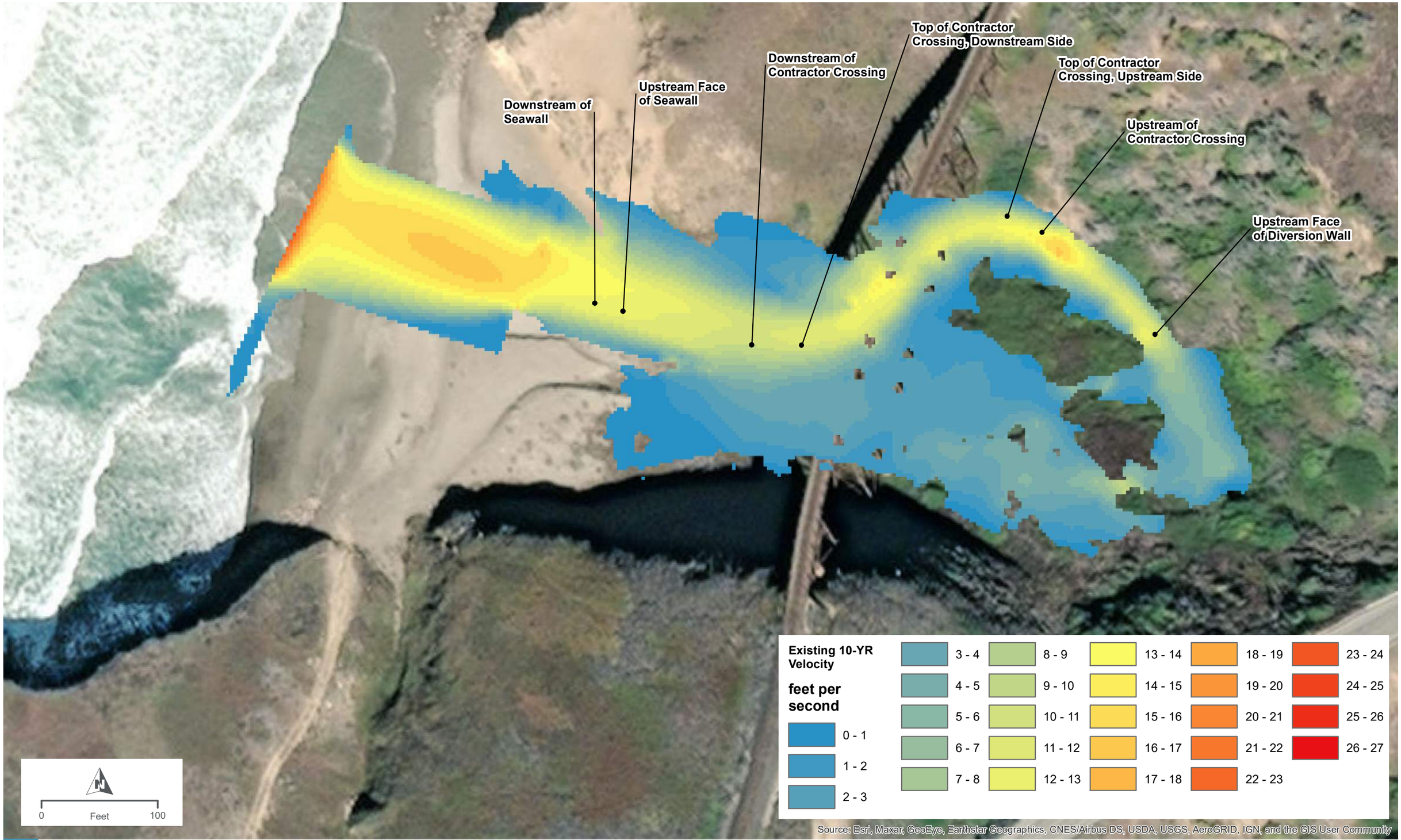
FIGURE 11



EXISTING CONDITIONS 10-YEAR DEPTH AND WATER SURFACE ELEVATION

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

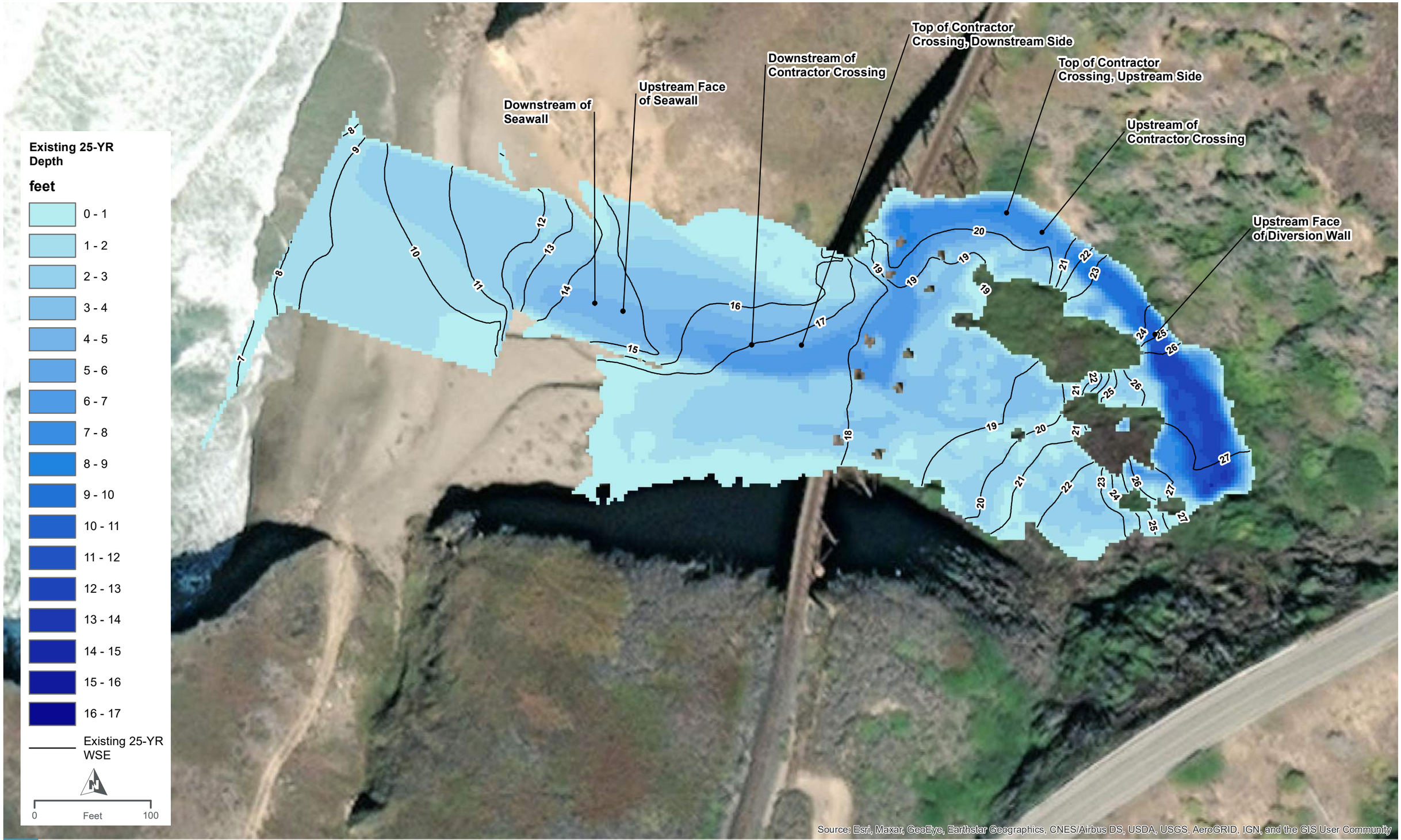
FIGURE 12



EXISTING CONDITIONS 10-YEAR VELOCITY

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

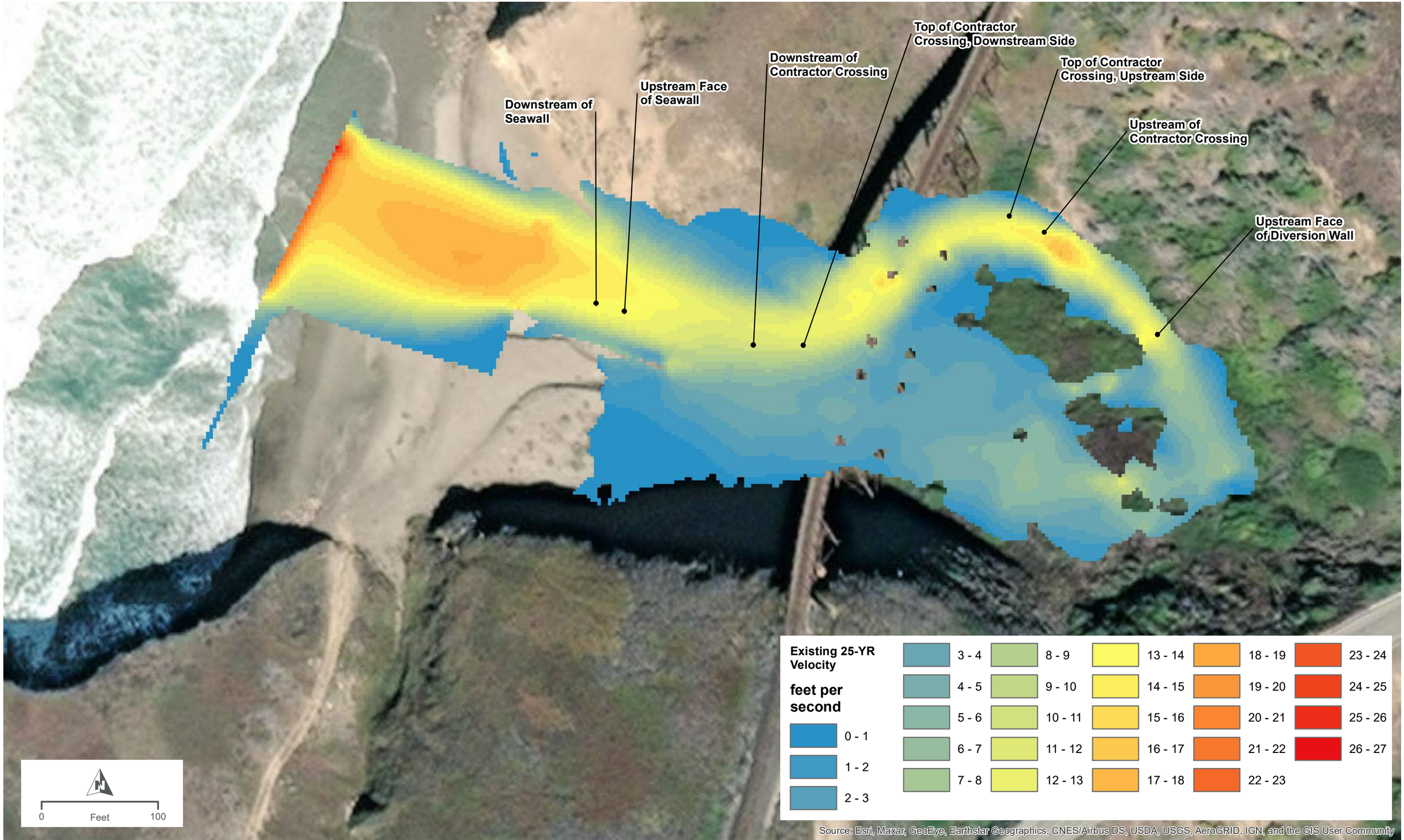
FIGURE 13



EXISTING CONDITIONS 25-YEAR DEPTH AND WATER SURFACE ELEVATION

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

FIGURE 14



HDR

EXISTING CONDITIONS 25-YEAR VELOCITY

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

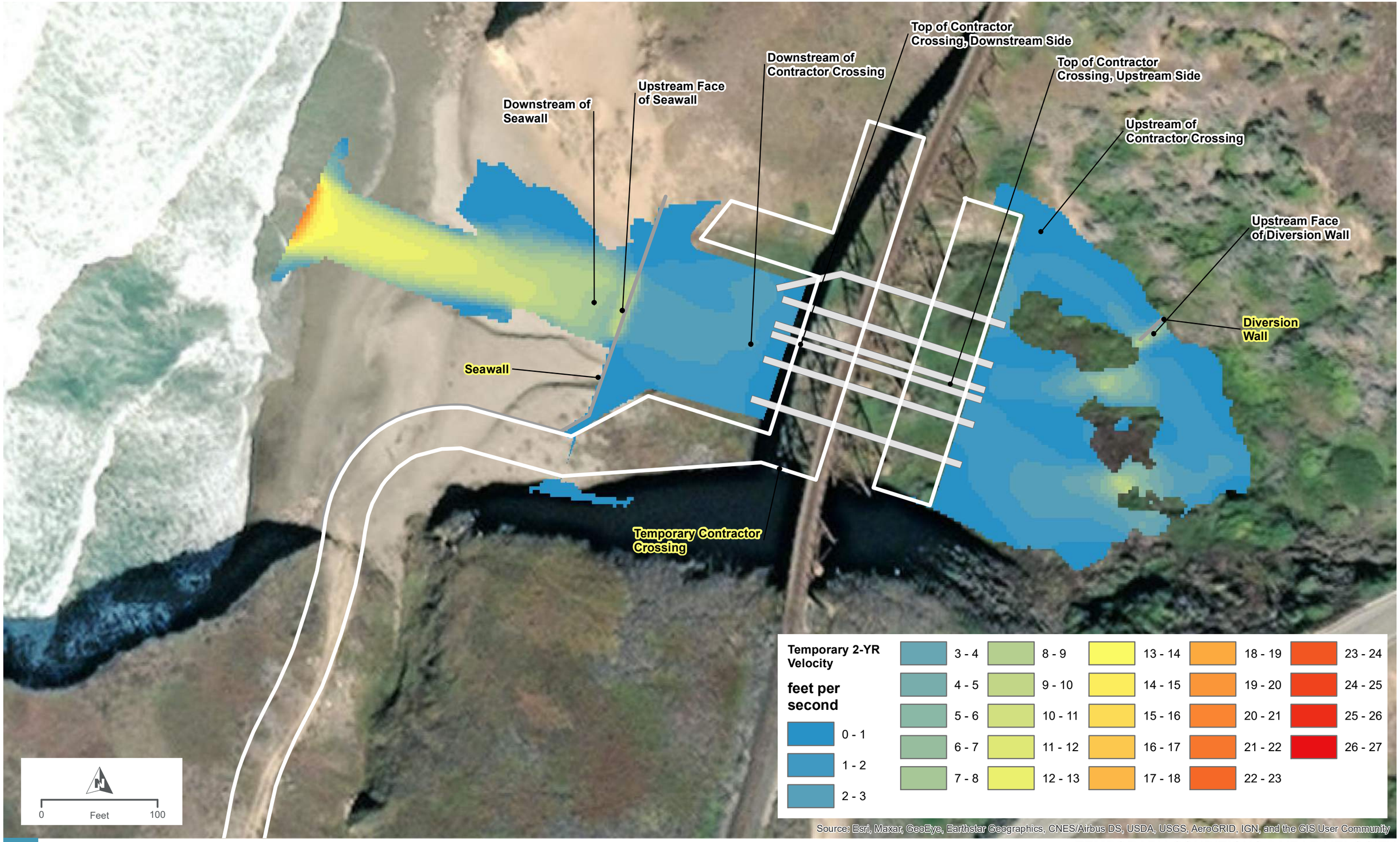
FIGURE 15



TEMPORARY CONDITIONS 2-YEAR DEPTH AND WATER SURFACE ELEVATION

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

FIGURE 16

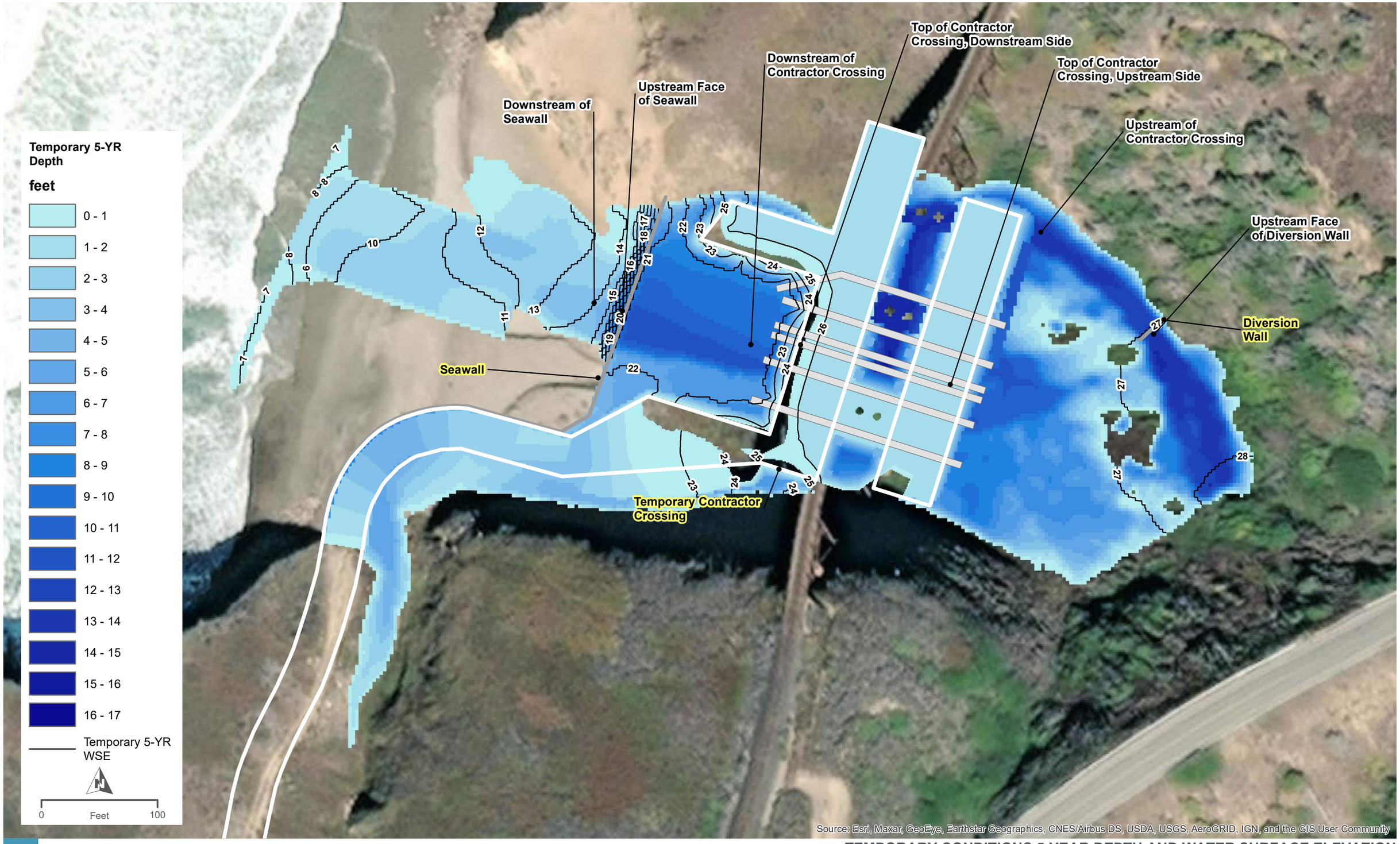


HDR

TEMPORARY CONDITIONS 2-YEAR VELOCITY

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

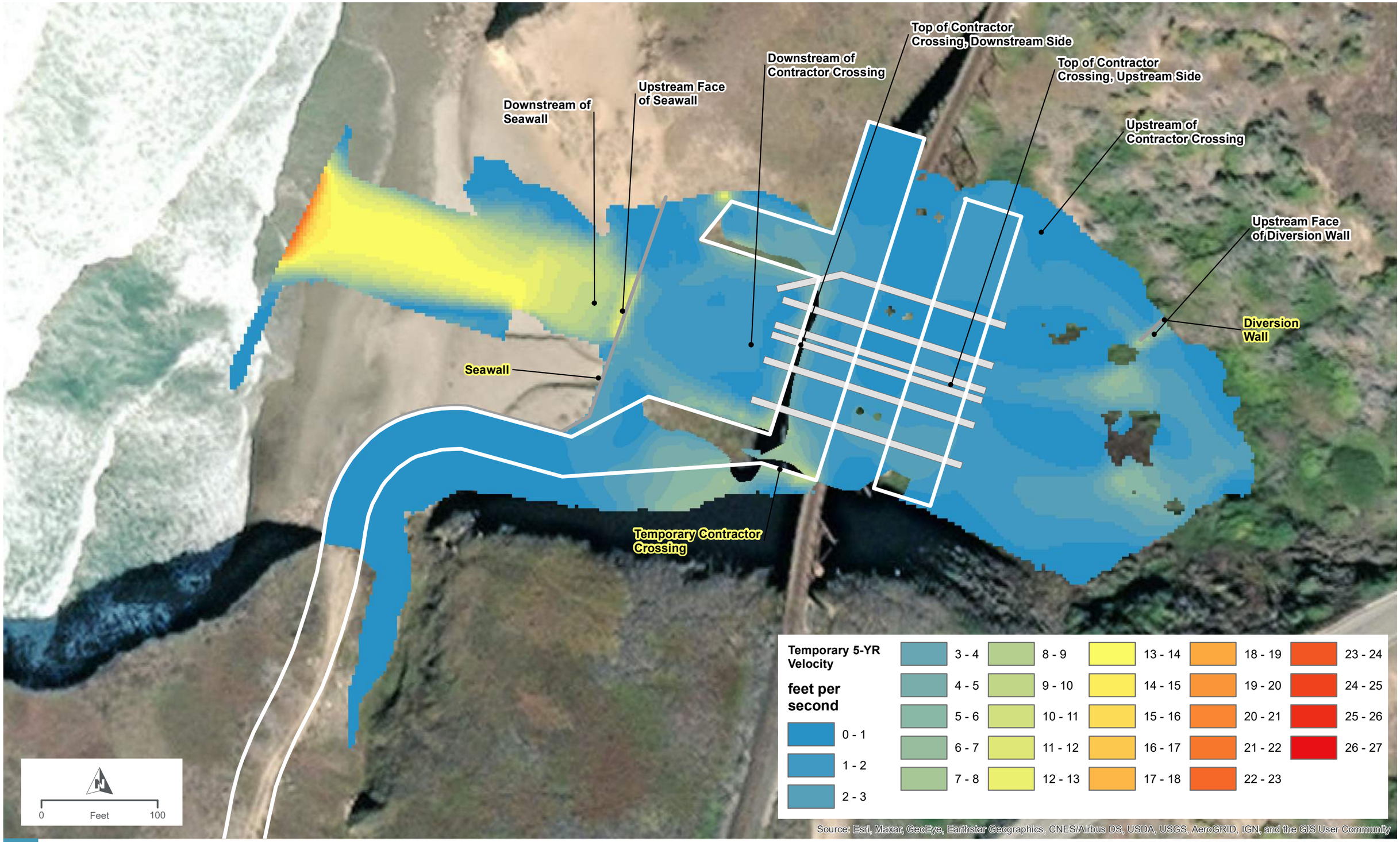
FIGURE 17



TEMPORARY CONDITIONS 5-YEAR DEPTH AND WATER SURFACE ELEVATION

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

FIGURE 18

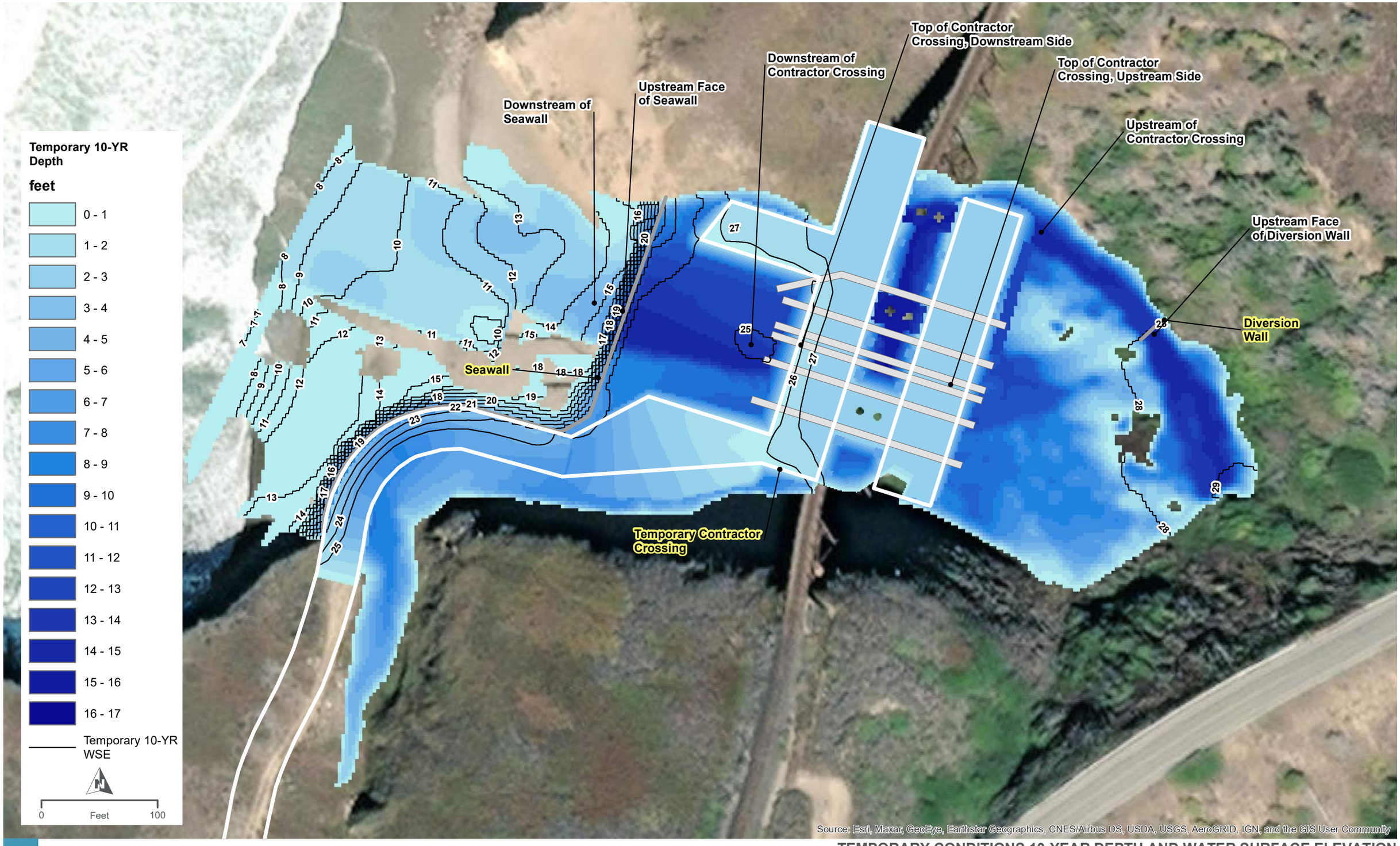


HDR

TEMPORARY CONDITIONS 5-YEAR VELOCITY

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

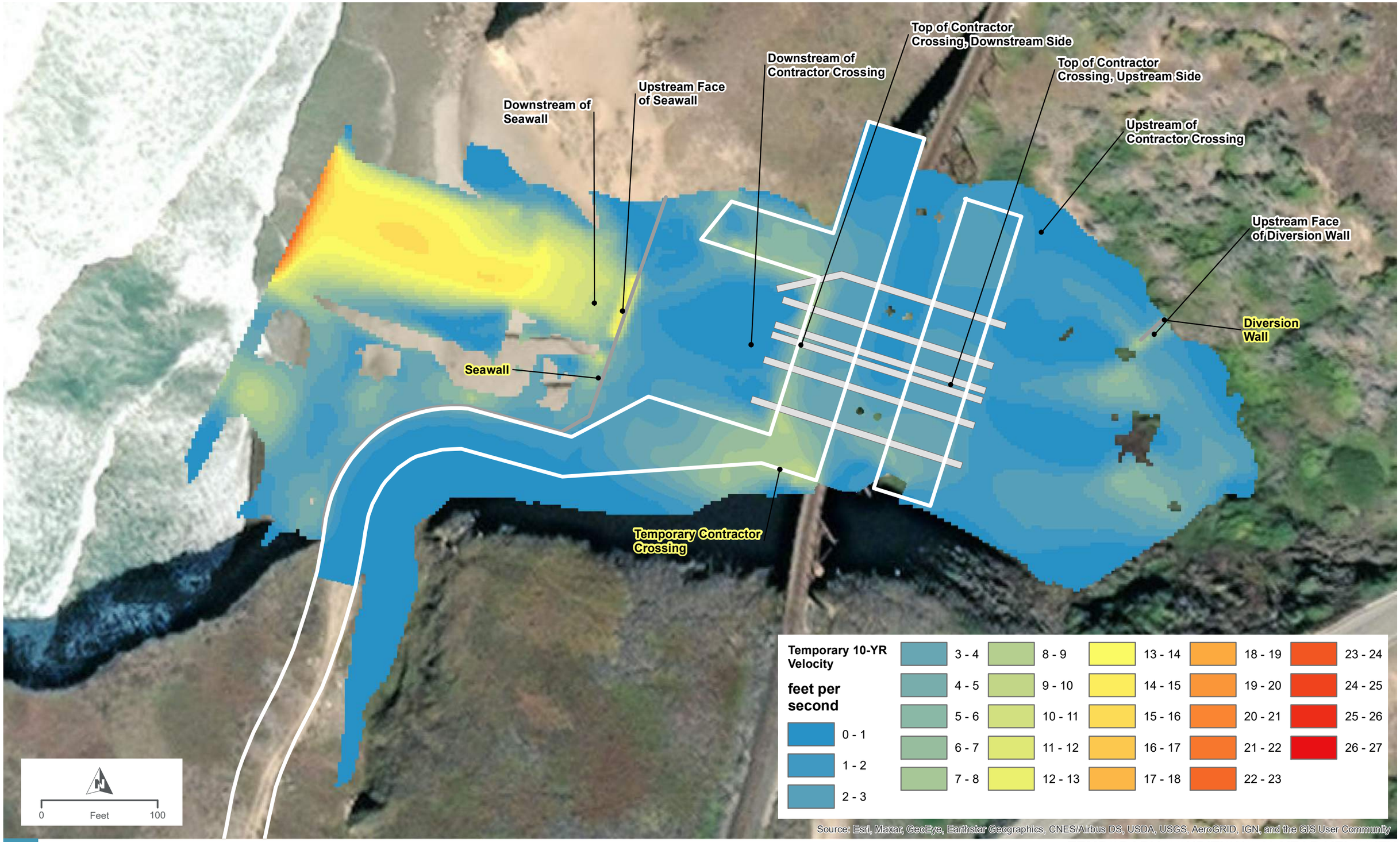
FIGURE 19



TEMPORARY CONDITIONS 10-YEAR DEPTH AND WATER SURFACE ELEVATION

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

FIGURE 20

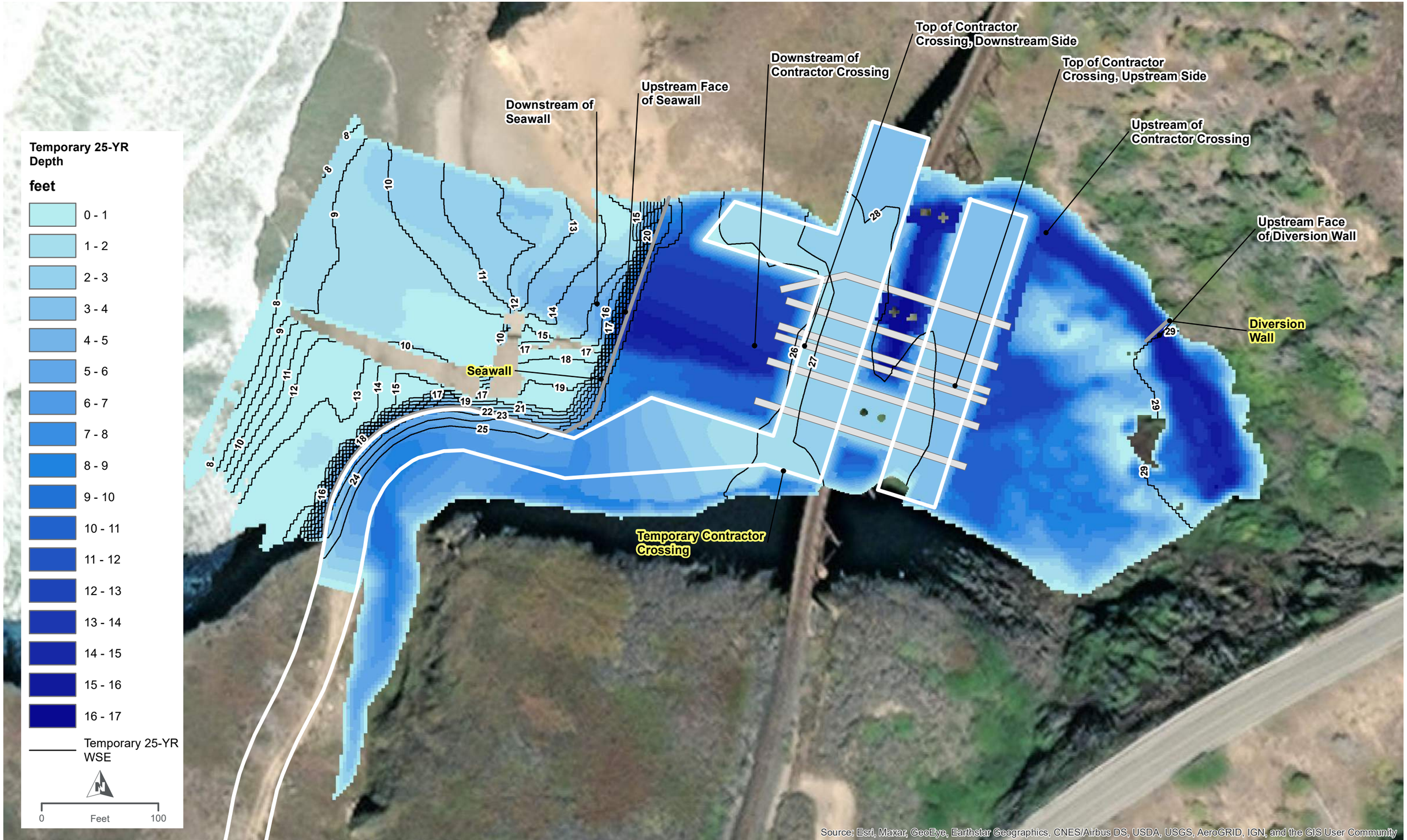


HDR

TEMPORARY CONDITIONS 10-YEAR VELOCITY

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

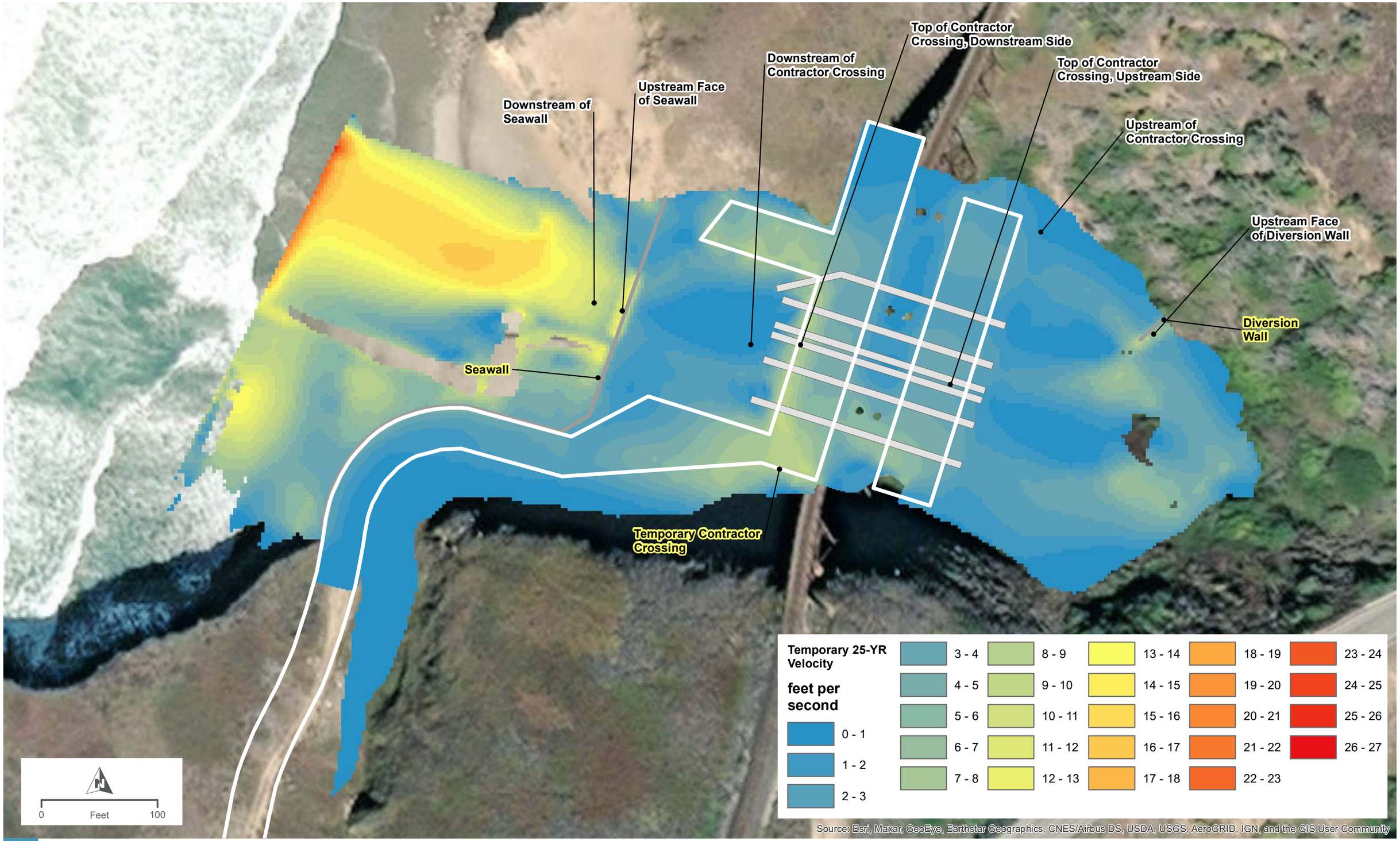
FIGURE 21



TEMPORARY CONDITIONS 25-YEAR DEPTH AND WATER SURFACE ELEVATION

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

FIGURE 22



HDR

TEMPORARY CONDITIONS 25-YEAR VELOCITY

UP 304.88 SANTA BARBARA 2D HYDRAULIC MODELING

FIGURE 23

APPENDIX Q. THE EDR RADIUS MAP ™ REPORT WITH GEOCHECK®

Honda Bridge
Coast Road/Honda Ridge Road
Lompoc, CA 93437

Inquiry Number: 7151434.2s
October 18, 2022

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-7
Physical Setting Source Map Findings	A-8
Physical Setting Source Records Searched	PSGR-1

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with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527-21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

COAST ROAD/HONDA RIDGE ROAD
LOMPOC, CA 93437

COORDINATES

Latitude (North):	34.6080220 - 34ˆ 36' 28.87''
Longitude (West):	120.6359080 - 120ˆ 38' 9.26''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	716777.9
UTM Y (Meters):	3831920.2
Elevation:	42 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	12004657 POINT ARGUELLO, CA
Version Date:	2018
Northeast Map:	12004683 SURF, CA
Version Date:	2018
Southeast Map:	12004689 TRANQUILLON MOUNTAIN, CA
Version Date:	2018
Northwest Map:	12007715 SURF OE W, CA
Version Date:	2018

AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year:	No Photo Available
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
COAST ROAD/HONDA RIDGE ROAD
LOMPOC, CA 93437

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
Reg	VANDENBERG AIR FORCE		DOD	Same	1 ft.
A1	HONDA CANYON CULVERT	COAST ROAD	NPDES, CERS	Higher	1 ft.
A2	STS POWER PLANT PERC	COAST ROAD AND HONDA	WDR, CIWQS, CERS	Higher	1 ft.
A3	SURF STATION RESTORA	SURF STATION & W OCE	CIWQS	Higher	1 ft.
A4	HONDA CREEK CULVERTS	COAST ROAD	CIWQS	Higher	1 ft.
B5	VANDENBERG SPACE FOR	806	MCS	Higher	1 ft.
B6	VANDENBERG SPACE FOR	HONDA CANYON ROAD	MCS	Higher	1 ft.
A7	STS POWER PLANT PERC	COAST ROAD AND HONDA	FINDS	Higher	1 ft.
A8	STS POWER PLANT PERC	COAST ROAD AND HONDA	WDS	Higher	1 ft.
9	SOUTH BASE AREA CIRC		UXO	Higher	42, 0.008, NNE
A10	HONDA CREEK CULVERTS		CIWQS	Higher	63, 0.012, SE
11	SIGNORELLI QUARRY		MINES MRDS	Higher	369, 0.070, East
C12	SOUTH VANDENBERG AFB	BLDG. 525 COAST	CERS	Higher	605, 0.115, South
C13	SOUTH VANDENBERG AFB	BLDG. 525 COAST ROAD	WDR, CIWQS	Higher	605, 0.115, South
14	DEMOLISH SLC 5	DELPHY ROAD	CIWQS	Higher	922, 0.175, East
C15	VANDENBERG SPACE FOR	806	MCS	Higher	999, 0.189, South
16	REPLACE OVERHEAD FEE	7 MILES SOUTHWEST OF	CIWQS	Higher	1245, 0.236, NE
D17	COAST ROAD CULVERT R	COAST ROAD	CIWQS	Higher	2277, 0.431, South
D18	EMERGENCY VAFB CULVE	COAST	CERS	Higher	2277, 0.431, South
D19	COAST ROAD CULVERT R	COAST	CERS	Higher	2277, 0.431, South
D20	EMERGENCY VAFB CULVE	COAST ROAD	CIWQS	Higher	2277, 0.431, South
21	TRAINING AND MANEAUV		UXO	Higher	5038, 0.954, NE
E22	PT ARGUELLO RAD SITE		FUDS	Higher	6096, 1.155, South
E23	POINT ARGUELLO RAD B		ENVIROSTOR	Higher	6104, 1.156, South
24	SOUTH BASE AREA MEC		UXO	Higher	7056, 1.336, East
F25	NAVAL DIRECTION FIND		FUDS	Higher	7753, 1.468, South
F26	PT ARGUELLO LORAN ST		FUDS	Higher	7753, 1.468, South
F27	NAVAL DIRECTION FIND		ENVIROSTOR	Higher	7756, 1.469, South
F28	PT ARGUELLO LORAN ST		ENVIROSTOR	Higher	7756, 1.469, South

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ---------- National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS ---------- Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROLS ..... Institutional Controls Sites List

Federal ERNS list

ERNS ..... Emergency Response Notification System

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE ..... State Response Sites

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF ..... Solid Waste Information System

Lists of state and tribal leaking storage tanks

LUST ..... Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land
CPS-SLIC ..... Statewide SLIC Cases

Lists of state and tribal registered storage tanks

FEMA UST ..... Underground Storage Tank Listing
UST ..... Active UST Facilities
AST ..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land

Lists of state and tribal voluntary cleanup sites

VCP ..... Voluntary Cleanup Program Properties
INDIAN VCP ..... Voluntary Cleanup Priority Listing

Lists of state and tribal brownfield sites

BROWNFIELDS ..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ..... Waste Management Unit Database
SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
ODI ..... Open Dump Inventory
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS ..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ..... Delisted National Clandestine Laboratory Register

HIST Cal-Sites ---- Historical Calsites Database
SCH ---- School Property Evaluation Program
CDL ---- Clandestine Drug Labs
CERS HAZ WASTE ---- CERS HAZ WASTE
Toxic Pits ---- Toxic Pits Cleanup Act Sites
US CDL ---- National Clandestine Laboratory Register
AQUEOUS FOAM ---- Former Fire Training Facility Assessments Listing
PFAS ---- PFAS Contamination Site Location Listing

Local Lists of Registered Storage Tanks

SWEEPS UST ---- SWEEPS UST Listing
HIST UST ---- Hazardous Substance Storage Container Database
CERS TANKS ---- California Environmental Reporting System (CERS) Tanks
CA FID UST ---- Facility Inventory Database

Local Land Records

LIENS ---- Environmental Liens Listing
LIENS 2 ---- CERCLA Lien Information
DEED ---- Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ---- Hazardous Materials Information Reporting System
CHMIRS ---- California Hazardous Material Incident Report System
LDS ---- Land Disposal Sites Listing
SPILLS 90 ---- SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR ---- RCRA - Non Generators / No Longer Regulated
SCRD DRYCLEANERS ---- State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ---- Financial Assurance Information
EPA WATCH LIST ---- EPA WATCH LIST
2020 COR ACTION ---- 2020 Corrective Action Program List
TSCA ---- Toxic Substances Control Act
TRIS ---- Toxic Chemical Release Inventory System
SSTS ---- Section 7 Tracking Systems
ROD ---- Records Of Decision
RMP ---- Risk Management Plans
RAATS ---- RCRA Administrative Action Tracking System
PRP ---- Potentially Responsible Parties
PADS ---- PCB Activity Database System
ICIS ---- Integrated Compliance Information System
FTTS ---- FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS ---- Material Licensing Tracking System
COAL ASH DOE ---- Steam-Electric Plant Operation Data
COAL ASH EPA ---- Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ---- PCB Transformer Registration Database
RADINFO ---- Radiation Information Database
HIST FTTS ---- FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS ---- Incident and Accident Data
CONSENT ---- Superfund (CERCLA) Consent Decrees

INDIAN RESERV ---- Indian Reservations
FUSRAP ---- Formerly Utilized Sites Remedial Action Program
UMTRA ---- Uranium Mill Tailings Sites
LEAD SMELTERS ---- Lead Smelter Sites
US AIRS ---- Aerometric Information Retrieval System Facility Subsystem
US MINES ---- Mines Master Index File
ABANDONED MINES ---- Abandoned Mines
DOCKET HWC ---- Hazardous Waste Compliance Docket Listing
ECHO ---- Enforcement & Compliance History Information
FUELS PROGRAM ---- EPA Fuels Program Registered Listing
CA BOND EXP. PLAN ---- Bond Expenditure Plan
Cortese ---- "Cortese" Hazardous Waste & Substances Sites List
CUPA Listings ---- CUPA Resources List
DRYCLEANERS ---- Cleaner Facilities
EMI ---- Emissions Inventory Data
ENF ---- Enforcement Action Listing
Financial Assurance ---- Financial Assurance Information Listing
HAZNET ---- Facility and Manifest Data
HIST CORTESE ---- Hazardous Waste & Substance Site List
HWP ---- EnviroStor Permitted Facilities Listing
HWT ---- Registered Hazardous Waste Transporter Database
MINES ---- Mines Site Location Listing
MWMP ---- Medical Waste Management Program Listing
PEST LIC ---- Pesticide Regulation Licenses Listing
PROC ---- Certified Processors Database
Notify 65 ---- Proposition 65 Records
UIC ---- UIC Listing
UIC GEO ---- UIC GEO (GEOTRACKER)
WASTEWATER PITS ---- Oil Wastewater Pits Listing
WIP ---- Well Investigation Program Case List
MILITARY PRIV SITES ---- MILITARY PRIV SITES (GEOTRACKER)
PROJECT ---- PROJECT (GEOTRACKER)
NON-CASE INFO ---- NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS ---- OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS ---- PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT ---- SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ ---- Well Stimulation Project (GEOTRACKER)
HWTS ---- Hazardous Waste Tracking System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP ---- EDR Proprietary Manufactured Gas Plants
EDR Hist Auto ---- EDR Exclusive Historical Auto Stations
EDR Hist Cleaner ---- EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF ---- Recovered Government Archive Solid Waste Facilities List
RGA LUST ---- Recovered Government Archive Leaking Underground Storage Tank

EXECUTIVE SUMMARY

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 07/25/2022 has revealed that there are 3 ENVIROSTOR sites within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
POINT ARGUELLO RAD B Facility Id: 80000420 Status: Inactive - Needs Evaluation		S 1 - 2 (1.156 mi.)	E23	23
NAVAL DIRECTION FIND Facility Id: 80001048 Status: Inactive - Needs Evaluation		S 1 - 2 (1.469 mi.)	F27	26
PT ARGUELLO LORAN ST Facility Id: 80000419 Status: Inactive - Needs Evaluation		S 1 - 2 (1.469 mi.)	F28	27

ADDITIONAL ENVIRONMENTAL RECORDS

Records of Emergency Release Reports

MCS: Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data

management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the MCS list, as provided by EDR, and dated 05/23/2022 has revealed that there are 3 MCS sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
VANDENBERG SPACE FOR Global Id: DOD100392200 Status: Completed - Case Closed	806	0 - 1/8 (0.000 mi.)	B5	13
VANDENBERG SPACE FOR Global Id: T10000013340 Status: Completed - Case Closed	HONDA CANYON ROAD	0 - 1/8 (0.000 mi.)	B6	13
VANDENBERG SPACE FOR Global Id: DOD100396300 Status: Completed - Case Closed	806	S 1/8 - 1/4 (0.189 mi.)	C15	19

Other Ascertainable Records

FUDS: The Listing includes locations of Formerly Used Defense Sites Properties where the US Army Corps Of Engineers is actively working or will take necessary cleanup actions.

A review of the FUDS list, as provided by EDR, and dated 08/11/2022 has revealed that there are 3 FUDS sites within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PT ARGUELLO RAD SITE		S 1 - 2 (1.155 mi.)	E22	22
NAVAL DIRECTION FIND		S 1 - 2 (1.468 mi.)	F25	24
PT ARGUELLO LORAN ST		S 1 - 2 (1.468 mi.)	F26	26

DOD: Consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

A review of the DOD list, as provided by EDR, and dated 06/07/2021 has revealed that there is 1 DOD site within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
VANDENBERG AIR FORCE		0 - 1/8 (0.000 mi.)	0	9

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 05/13/2022 has revealed that there is 1

FINDS site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
STS POWER PLANT PERC Registry ID:: 110065244550	COAST ROAD AND HONDA	0 - 1/8 (0.000 mi.)	A7	14

UXO: A listing of unexploded ordnance site locations

A review of the UXO list, as provided by EDR, and dated 12/31/2020 has revealed that there are 3 UXO sites within approximately 1.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SOUTH BASE AREA CIRC		NNE 0 - 1/8 (0.008 mi.)	9	15
TRAINING AND MANEAUV		NE 1/2 - 1 (0.954 mi.)	21	22
SOUTH BASE AREA MEC		E 1 - 2 (1.336 mi.)	24	24

NPDES: A listing of NPDES permits, including stormwater.

A review of the NPDES list, as provided by EDR, and dated 05/09/2022 has revealed that there is 1 NPDES site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HONDA CANYON CULVERT Facility Status: Active	***COAST ROAD***	***0 - 1/8 (0.000 mi.)***	***A1***	***9***

WDS: California Water Resources Control Board - Waste Discharge System.

A review of the WDS list, as provided by EDR, and dated 06/19/2007 has revealed that there is 1 WDS site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
STS POWER PLANT PERC Facility Status: A Facility Id: 3 420707020	COAST ROAD AND HONDA	0 - 1/8 (0.000 mi.)	A8	14

WDR: In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

A review of the WDR list, as provided by EDR, and dated 06/06/2022 has revealed that there are 2 WDR sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
STS POWER PLANT PERC	***COAST ROAD AND HONDA***	***0 - 1/8 (0.000 mi.)***	***A2***	***10***
SOUTH VANDENBERG AFB	***BLDG. 525 COAST ROAD***	***S 0 - 1/8 (0.115 mi.)***	***C13***	***17***

EXECUTIVE SUMMARY

CIWQS: The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

A review of the CIWQS list, as provided by EDR, and dated 08/16/2022 has revealed that there are 9 CIWQS sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
STS POWER PLANT PERC	***COAST ROAD AND HONDA***	***0 - 1/8 (0.000 mi.)***	***A2***	***10***
SURF STATION RESTORA	SURF STATION & W OCE	0 - 1/8 (0.000 mi.)	A3	11
HONDA CREEK CULVERTS	COAST ROAD	0 - 1/8 (0.000 mi.)	A4	12
HONDA CREEK CULVERTS		SE 0 - 1/8 (0.012 mi.)	A10	16
SOUTH VANDENBERG AFB	***BLDG. 525 COAST ROAD***	***S 0 - 1/8 (0.115 mi.)***	***C13***	***17***
DEMOLISH SLC 5	DELPHY ROAD	E 1/8 - 1/4 (0.175 mi.)	14	18
REPLACE OVERHEAD FEE	7 MILES SOUTHWEST OF	NE 1/8 - 1/4 (0.236 mi.)	16	19
COAST ROAD CULVERT R	COAST ROAD	S 1/4 - 1/2 (0.431 mi.)	D17	20
EMERGENCY VAFB CULVE	COAST ROAD	S 1/4 - 1/2 (0.431 mi.)	D20	21

CERS: The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

A review of the CERS list, as provided by EDR, and dated 07/18/2022 has revealed that there are 5 CERS sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HONDA CANYON CULVERT	***COAST ROAD***	***0 - 1/8 (0.000 mi.)***	***A1***	***9***
STS POWER PLANT PERC	***COAST ROAD AND HONDA***	***0 - 1/8 (0.000 mi.)***	***A2***	***10***
SOUTH VANDENBERG AFB	BLDG. 525 COAST	S 0 - 1/8 (0.115 mi.)	C12	17
EMERGENCY VAFB CULVE	COAST	S 1/4 - 1/2 (0.431 mi.)	D18	21
COAST ROAD CULVERT R	COAST	S 1/4 - 1/2 (0.431 mi.)	D19	21

MINES MRDS: Mineral Resources Data System

A review of the MINES MRDS list, as provided by EDR, and dated 04/06/2018 has revealed that there is 1 MINES MRDS site within approximately 0.5 miles of the target property.

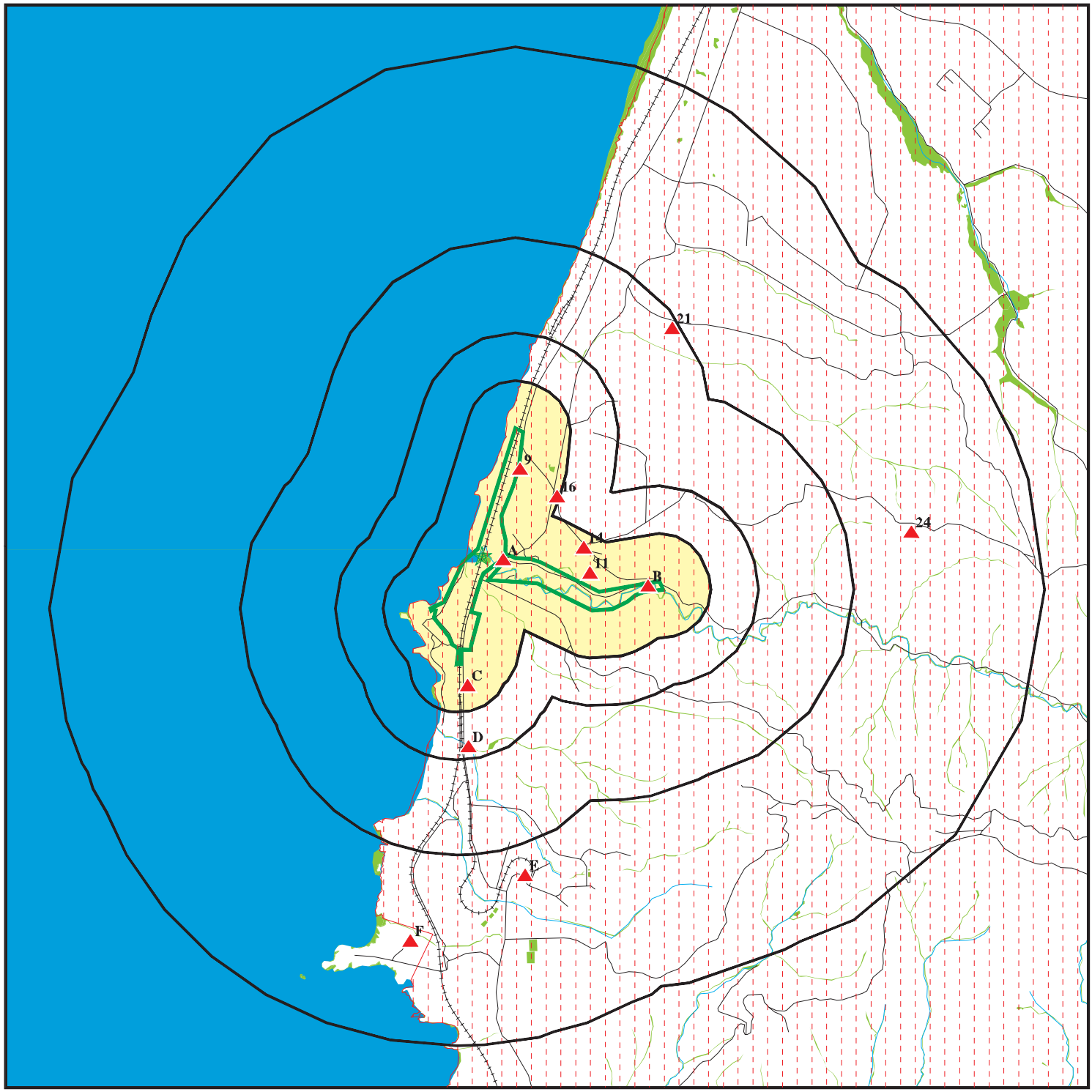
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SIGNORELLI QUARRY		E 0 - 1/8 (0.070 mi.)	11	16

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 38 records.

Site Name	Database(s)
FACILITY 13017-1	LUST, HIST CORTESE
FACILITY 11455-1	LUST, HIST CORTESE
FACILITY 7312-4	LUST, HIST CORTESE
FACILITY 13004-1	LUST, HIST CORTESE
FACILITY 13026-1	LUST, HIST CORTESE
FACILITY 13014-1	LUST, HIST CORTESE
FACILITY 13421-1	LUST, HIST CORTESE
FACILITY 13501-1	LUST, HIST CORTESE
FACILITY 7003-1	LUST, HIST CORTESE
FACILITY 8110-1	LUST, HIST CORTESE
FACILITY 8122-1	LUST, HIST CORTESE
FACILITY 4230-1	LUST, HIST CORTESE
FACILITY 5108-1	LUST, HIST CORTESE
FACILITY 6007-1	LUST, HIST CORTESE
FACILITY 2005-1	LUST, HIST CORTESE
FACILITY 5210-1	LUST, HIST CORTESE
FACILITY 5329-1	LUST, HIST CORTESE
FACILITY 6204-1	LUST, HIST CORTESE
FACILITY 2155-1	LUST, HIST CORTESE
FACILITY 8020-1	LUST, HIST CORTESE
FACILITY 8206-1	LUST, HIST CORTESE
FACILITY 11002-1	LUST
FACILITY 8009-1	LUST
FACILITY 5008-1	LUST
FACILITY 11456-1	LUST
FACILITY 12505-1	LUST
FACILITY 3106-1	LUST
FACILITY 10201-1	LUST
FACILITY 13011-1	LUST
FACILITY 2206-1	LUST
FACILITY 8128-1	LUST
FACILITY 13522-1	LUST
FACILITY 13002-1	LUST
FACILITY 11124-1	LUST
FACILITY 3215-1	LUST
FACILITY 6015-1	LUST
FACILITY 2223-1	LUST
FACILITY 6206-1	LUST

OVERVIEW MAP - 7151434.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/2 1 2 Miles

Indian Reservations BIA

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

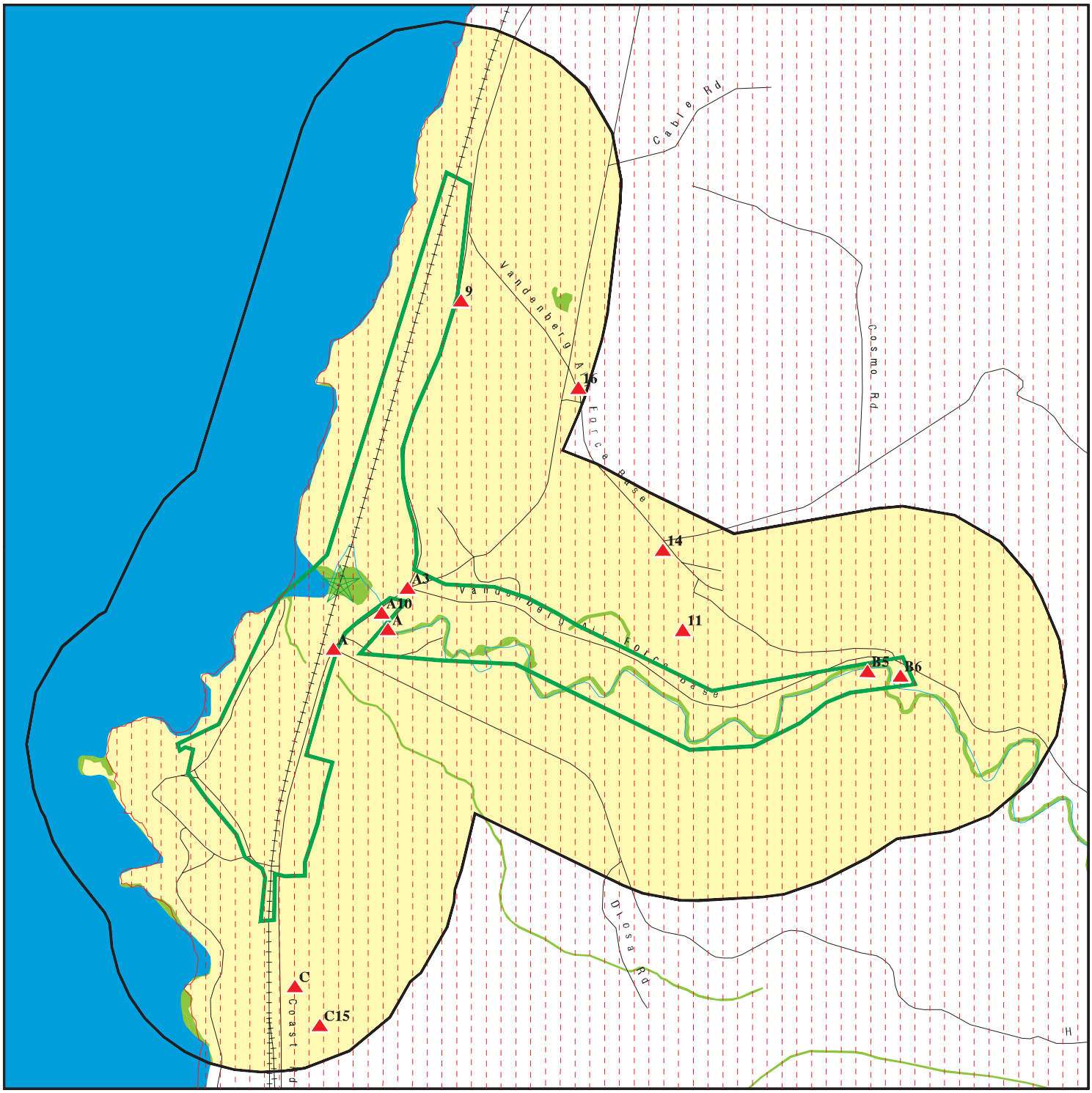
Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Honda Bridge	CLIENT: Althouse & Meade Inc
ADDRESS: Coast Road/Honda Ridge Road Lompoc CA 93437	CONTACT: Darcee Guttilla INQUIRY #: 7151434.2s
LAT/LONG: 34.608022 / 120.635908	DATE: October 18, 2022 12:45 pm

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DETAIL MAP - 7151434.2S



0 1/8 1/4 1/2 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Honda Bridge	CLIENT:	Althouse & Meade Inc
ADDRESS:	Coast Road/Honda Ridge Road Lompoc CA 93437	CONTACT:	Darcee Guttilla
		INQUIRY #:	7151434.2s
LAT/LONG:	34.608022 / 120.635908	DATE:	October 18, 2022 12:46 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.500		0	0	0	0	0	0
Proposed NPL	1.500		0	0	0	0	0	0
NPL LIENS	1.500		0	0	0	0	0	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.500		0	0	0	0	0	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	1.000		0	0	0	0	NR	0
SEMS	1.000		0	0	0	0	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	1.000		0	0	0	0	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.500		0	0	0	0	0	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	1.000		0	0	0	0	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.750		0	0	0	0	NR	0
RCRA-SQG	0.750		0	0	0	0	NR	0
RCRA-VSQG	0.750		0	0	0	0	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	1.000		0	0	0	0	NR	0
US ENG CONTROLS	1.000		0	0	0	0	NR	0
US INST CONTROLS	1.000		0	0	0	0	NR	0
Federal ERNS list								
ERNS	0.500		0	0	0	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.500		0	0	0	0	0	0
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.500		0	0	0	0	3	3
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	1.000		0	0	0	0	NR	0
INDIAN LUST	1.000		0	0	0	0	NR	0
CPS-SLIC	1.000		0	0	0	0	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.750		0	0	0	0	NR	0
UST	0.750		0	0	0	0	NR	0
AST	0.750		0	0	0	0	NR	0
INDIAN UST	0.750		0	0	0	0	NR	0
Lists of state and tribal voluntary cleanup sites								
VCP	1.000		0	0	0	0	NR	0
INDIAN VCP	1.000		0	0	0	0	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	1.000		0	0	0	0	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	1.000		0	0	0	0	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	1.000		0	0	0	0	NR	0
SWRCY	1.000		0	0	0	0	NR	0
HAULERS	0.500		0	0	0	NR	NR	0
INDIAN ODI	1.000		0	0	0	0	NR	0
ODI	1.000		0	0	0	0	NR	0
DEBRIS REGION 9	1.000		0	0	0	0	NR	0
IHS OPEN DUMPS	1.000		0	0	0	0	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.500		0	0	0	NR	NR	0
HIST Cal-Sites	1.500		0	0	0	0	0	0
SCH	0.750		0	0	0	0	NR	0
CDL	0.500		0	0	0	NR	NR	0
CERS HAZ WASTE	0.750		0	0	0	0	NR	0
Toxic Pits	1.500		0	0	0	0	0	0
US CDL	0.500		0	0	0	NR	NR	0
AQUEOUS FOAM	0.500		0	0	0	NR	NR	0
PFAS	1.000		0	0	0	0	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.750		0	0	0	0	NR	0
HIST UST	0.750		0	0	0	0	NR	0
CERS TANKS	0.750		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CA FID UST	0.750		0	0	0	0	NR	0
Local Land Records								
LIENS	0.500		0	0	0	NR	NR	0
LIENS 2	0.500		0	0	0	NR	NR	0
DEED	1.000		0	0	0	0	NR	0
Records of Emergency Release Reports								
HMIRS	0.500		0	0	0	NR	NR	0
CHMIRS	0.500		0	0	0	NR	NR	0
LDS	0.500		0	0	0	NR	NR	0
MCS	0.500		2	1	0	NR	NR	3
SPILLS 90	0.500		0	0	0	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.750		0	0	0	0	NR	0
FUDS	1.500		0	0	0	0	3	3
DOD	1.500		1	0	0	0	0	1
SCRD DRYCLEANERS	1.000		0	0	0	0	NR	0
US FIN ASSUR	0.500		0	0	0	NR	NR	0
EPA WATCH LIST	0.500		0	0	0	NR	NR	0
2020 COR ACTION	0.750		0	0	0	0	NR	0
TSCA	0.500		0	0	0	NR	NR	0
TRIS	0.500		0	0	0	NR	NR	0
SSTS	0.500		0	0	0	NR	NR	0
ROD	1.500		0	0	0	0	0	0
RMP	0.500		0	0	0	NR	NR	0
RAATS	0.500		0	0	0	NR	NR	0
PRP	0.500		0	0	0	NR	NR	0
PADS	0.500		0	0	0	NR	NR	0
ICIS	0.500		0	0	0	NR	NR	0
FTTS	0.500		0	0	0	NR	NR	0
MLTS	0.500		0	0	0	NR	NR	0
COAL ASH DOE	0.500		0	0	0	NR	NR	0
COAL ASH EPA	1.000		0	0	0	0	NR	0
PCB TRANSFORMER	0.500		0	0	0	NR	NR	0
RADINFO	0.500		0	0	0	NR	NR	0
HIST FTTS	0.500		0	0	0	NR	NR	0
DOT OPS	0.500		0	0	0	NR	NR	0
CONSENT	1.500		0	0	0	0	0	0
INDIAN RESERV	1.500		0	0	0	0	0	0
FUSRAP	1.500		0	0	0	0	0	0
UMTRA	1.000		0	0	0	0	NR	0
LEAD SMELTERS	0.500		0	0	0	NR	NR	0
US AIRS	0.500		0	0	0	NR	NR	0
US MINES	0.750		0	0	0	0	NR	0
ABANDONED MINES	0.750		0	0	0	0	NR	0
FINDS	0.500		1	0	0	NR	NR	1
UXO	1.500		1	0	0	1	1	3
DOCKET HWC	0.500		0	0	0	NR	NR	0
ECHO	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FUELS PROGRAM	0.750		0	0	0	0	NR	0
CA BOND EXP. PLAN	1.500		0	0	0	0	0	0
Cortese	1.000		0	0	0	0	NR	0
CUPA Listings	0.750		0	0	0	0	NR	0
DRYCLEANERS	0.750		0	0	0	0	NR	0
EMI	0.500		0	0	0	NR	NR	0
ENF	0.500		0	0	0	NR	NR	0
Financial Assurance	0.500		0	0	0	NR	NR	0
HAZNET	0.500		0	0	0	NR	NR	0
HIST CORTESE	1.000		0	0	0	0	NR	0
HWP	1.500		0	0	0	0	0	0
HWT	0.750		0	0	0	0	NR	0
MINES	0.750		0	0	0	0	NR	0
MWMP	0.750		0	0	0	0	NR	0
NPDES	0.500		1	0	0	NR	NR	1
PEST LIC	0.500		0	0	0	NR	NR	0
PROC	1.000		0	0	0	0	NR	0
Notify 65	1.500		0	0	0	0	0	0
UIC	0.500		0	0	0	NR	NR	0
UIC GEO	0.500		0	0	0	NR	NR	0
WASTEWATER PITS	1.000		0	0	0	0	NR	0
WDS	0.500		1	0	0	NR	NR	1
WIP	0.750		0	0	0	0	NR	0
MILITARY PRIV SITES	0.500		0	0	0	NR	NR	0
PROJECT	0.500		0	0	0	NR	NR	0
WDR	0.500		2	0	0	NR	NR	2
CIWQS	0.500		5	2	2	NR	NR	9
CERS	0.500		3	0	2	NR	NR	5
NON-CASE INFO	0.500		0	0	0	NR	NR	0
OTHER OIL GAS	0.500		0	0	0	NR	NR	0
PROD WATER PONDS	0.500		0	0	0	NR	NR	0
SAMPLING POINT	0.500		0	0	0	NR	NR	0
WELL STIM PROJ	0.500		0	0	0	NR	NR	0
HWTS	0.500		0	0	0	NR	NR	0
MINES MRDS	0.500		1	0	0	NR	NR	1
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.500		0	0	0	0	0	0
EDR Hist Auto	0.625		0	0	0	0	NR	0
EDR Hist Cleaner	0.625		0	0	0	0	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.500		0	0	0	NR	NR	0
RGA LUST	0.500		0	0	0	NR	NR	0
- Totals --		0	18	3	4	1	7	33

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

DOD **VANDENBERG AIR FORCE BASE** **DOD** **CUSA401110**
Region **N/A**
, CA
< 1/8
1 ft.

DOD:

Site Name:	VANDENBERG AIR FORCE BASE
DOD Component:	AF Active
Joint Base:	N/A
Operating Status:	ACT (Active): Site has an on-going operational/support mission (s).

A1 **HONDA CANYON CULVERTS REPAIR** **NPDES** **S128201190**
COAST ROAD **CERS** **N/A**
< 1/8 **VANDENBERG AFB, CA 93437**
1 ft.

Site 1 of 7 in cluster A

Relative: **Higher**
Actual: **42 ft.**

NPDES:

Name:	HONDA CANYON CULVERTS REPAIR
Address:	COAST ROAD
City,State,Zip:	VANDENBERG AFB, CA 93437
Facility Status:	Active
NPDES Number:	CAS000002
Region:	3
Agency Number:	0
Regulatory Measure ID:	544690
Place ID:	Not reported
Order Number:	2009-0009-DWQ
WDID:	3 42W005263
Regulatory Measure Type:	Enrollee
Program Type:	Construction
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	01/12/2022
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	1028 Iceland Ave
Discharge Name:	Vandenberg AFB
Discharge City:	Vandenberg AFB
Discharge State:	California
Discharge Zip:	93437
Status:	Not reported
Status Date:	Not reported
Operator Name:	Not reported
Operator Address:	Not reported
Operator City:	Not reported
Operator State:	Not reported
Operator Zip:	Not reported

Name:	HONDA CANYON CULVERTS REPAIR
Address:	COAST ROAD
City,State,Zip:	VANDENBERG AFB, CA 93437
Facility Status:	Not reported
NPDES Number:	Not reported
Region:	Not reported
Agency Number:	Not reported
Regulatory Measure ID:	Not reported
Place ID:	Not reported
Order Number:	Not reported
WDID:	3 42W005263

HONDA CANYON CULVERTS REPAIR (Continued) **S128201190**

Regulatory Measure Type:	Construction
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Discharge Address:	Not reported
Discharge Name:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
Status:	Active
Status Date:	01/12/2022
Operator Name:	Vandenberg AFB
Operator Address:	1028 Iceland Ave
Operator City:	Vandenberg AFB
Operator State:	California
Operator Zip:	93437

CERS:

Name:	HONDA CANYON CULVERTS REPAIR
Address:	COAST ROAD
City,State,Zip:	VANDENBERG AFB, CA 93437
Site ID:	599909
CERS ID:	900652
CERS Description:	Construction Storm Water

Affiliation:

Affiliation Type Desc:	Owner/Operator
Entity Name:	Vandenberg AFB
Entity Title:	Operator
Affiliation Address:	1028 Iceland AveBldg 11146
Affiliation City:	Vandenberg AFB
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	93437
Affiliation Phone:	,

A2 **STS POWER PLANT PERC. POND** **WDR S122351500**
COAST ROAD AND HONDA RIDGE RD **CIWQS N/A**
< 1/8 **LOMPOC, CA 93436** **CERS**
1 ft.

Site 2 of 7 in cluster A

Relative: Higher
Actual: 114 ft.

WDR:

Name:	STS POWER PLANT PERC. POND
Address:	COAST ROAD AND HONDA RIDGE RD
City,State,Zip:	LOMPOC, CA 93436
Global ID:	WDR100036906
Status:	HISTORICAL - WDR

CIWQS:

Name:	STS POWER PLANT PERC. POND
Address:	COAST ROAD AND HONDA RIDGE RD
City,State,Zip:	LOMPOC, CA 93436
Agency:	US Air Force Vandenberg Air Force Base

STS POWER PLANT PERC. POND (Continued) **S122351500**

Agency Address:	30 Ces Cecc, Vandenberg Air Force Base, CA 93437
Place/Project Type:	Other
SIC/NAICS:	9711
Region:	3
Program:	WDRNONMUNIPRCS
Regulatory Measure Status:	Historical
Regulatory Measure Type:	WDR
Order Number:	86-004
WDID:	3 420707020
NPDES Number:	Not reported
Adoption Date:	01/10/1986
Effective Date:	01/10/1986
Termination Date:	Not reported
Expiration/Review Date:	01/06/2004
Design Flow:	0
Major/Minor:	Not reported
Complexity:	B
TTWQ:	3
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	34.60637
Longitude:	-120.63617

CERS:

Name:	STS POWER PLANT PERC. POND
Address:	COAST ROAD AND HONDA RIDGE RD
City,State,Zip:	LOMPOC, CA 93436
Site ID:	353524
CERS ID:	259283
CERS Description:	Waste Discharge Requirements

A3 **SURF STATION RESTORATION** **CIWQS** **S121678077**
SURF STATION & W OCEAN AVE **N/A**
< 1/8 **LOMPOC, CA 93436**
1 ft.

Site 3 of 7 in cluster A

Relative: Higher
Actual: 125 ft.

CIWQS:

Name:	SURF STATION RESTORATION
Address:	SURF STATION & W OCEAN AVE
City,State,Zip:	LOMPOC, CA 93436
Agency:	Union Pacific Railroad
Agency Address:	1400 Douglas St, Omaha, NE 68179
Place/Project Type:	Construction - Other
SIC/NAICS:	Not reported
Region:	3
Program:	CONSTW
Regulatory Measure Status:	Terminated
Regulatory Measure Type:	Storm water construction
Order Number:	2009-0009-DWQ
WDID:	3 42C324038
NPDES Number:	CAS000002
Adoption Date:	Not reported
Effective Date:	10/11/2003
Termination Date:	07/09/2010
Expiration/Review Date:	Not reported
Design Flow:	Not reported

SURF STATION RESTORATION (Continued) **S121678077**

Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	Not reported
Longitude:	Not reported

A4 **HONDA CREEK CULVERTS REPAIR PROJECT** **CIWQS** **S128692479**
COAST ROAD **N/A**
< 1/8 **VANDENBERG AFB, CA 93437**
1 ft.

Site 4 of 7 in cluster A

Relative: CIWQS:
Higher

Actual: Name:	HONDA CREEK CULVERTS REPAIR PROJECT
42 ft. Address:	COAST ROAD
City,State,Zip:	VANDENBERG AFB, CA 93437
Agency:	Vandenberg AFB
Agency Address:	1028 Iceland Ave Bldg 11146, Vandenberg Afb, CA 93437
Place/Project Type:	Construction - Other: Drainage Conveyance, Culvert Maintenance and Repair
SIC/NAICS:	Not reported
Region:	3
Program:	CONSTW
Regulatory Measure Status:	Active
Regulatory Measure Type:	Storm water construction
Order Number:	2009-0009-DWQ
WDID:	3 42C398068
NPDES Number:	CAS000002
Adoption Date:	Not reported
Effective Date:	07/18/2022
Termination Date:	Not reported
Expiration/Review Date:	Not reported
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	34.60691
Longitude:	-120.63452

Name:	HONDA CREEK CULVERTS REPAIR PROJECT
Address:	COAST ROAD
City,State,Zip:	VANDENBERG AFB, CA 93437
Agency:	Vandenberg AFB
Agency Address:	1028 Iceland Ave Bldg 11146, Vandenberg Afb, CA 93437
Place/Project Type:	Construction - Other: Culvert Repair Project
SIC/NAICS:	Not reported
Region:	3
Program:	CONSTW
Regulatory Measure Status:	Active
Regulatory Measure Type:	Storm water construction
Order Number:	2009-0009-DWQ
WDID:	3 42W005263
NPDES Number:	CAS000002
Adoption Date:	Not reported

HONDA CREEK CULVERTS REPAIR PROJECT (Continued) **S128692479**

Effective Date:	01/12/2022
Termination Date:	Not reported
Expiration/Review Date:	Not reported
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	34.60691
Longitude:	-120.63452

B5 **VANDENBERG SPACE FORCE BASE (FORMERLY VAFB) - SITE 806** **MCS** **S110168697**
< 1/8 **VANDENBERG AFB, CA 93437** **N/A**
1 ft.

Site 1 of 2 in cluster B

Relative: Higher
Actual: 123 ft.

MCS:

Name:	VANDENBERG SPACE FORCE BASE (FORMERLY VAFB) - SITE 56 (LANDFILL 7)
Address:	806
City,State,Zip:	VANDENBERG AFB, CA 93437-5242
Global Id:	DOD100392200
Latitude:	34.6059
Longitude:	-120.6206
Case Type:	Military Cleanup Site
Status:	Completed - Case Closed
Status Date:	05/20/2010
Lead Agency:	CENTRAL COAST RWQCB (REGION 3)
Caseworker:	CHK
Local Agency:	DEPARTMENT OF TOXIC SUBSTANCES CONTROL
RB Case Number:	16626 -- 34
LOC Case Number:	42970003
File Location:	Not reported
Potential Media Affect:	Not reported
EDR Link ID:	DOD100392200
Potential Contaminants of Concern:	Not reported
Site History:	Landfill No. 7 (Site 56) is on South VAFB on the south side of Honda Creek Road, and 1.7 miles from Coast Road. The site was used in the 1950s by local residents for household dumping and was incorrectly identified as a landfill. The site was closed per a 1995 Decision Document in 9/1999.

Click here to access the California GeoTracker records for this facility:

B6 **VANDENBERG SPACE FORCE BASE (FORMERLY VAFB) - CS18 HONDA CANYON ROAD** **MCS** **S125345345**
< 1/8 **VANDENBERG AFB, CA** **N/A**
1 ft.

Site 2 of 2 in cluster B

Relative: Higher
Actual: 124 ft.

MCS:

Name:	VANDENBERG SPACE FORCE BASE (FORMERLY VAFB) - CS188A SLC-5 (UDMH & IRFNA DRUM STORAGE BUILDINGS)
Address:	HONDA CANYON ROAD
City,State,Zip:	VANDENBERG AFB, CA

VANDENBERG SPACE FORCE BASE (FORMERLY VAFB) - CS188A SLC-5 ((Continued) **S125345345**

Global Id:	T10000013340
Latitude:	34.60579
Longitude:	-120.6196
Case Type:	Military Cleanup Site
Status:	Completed - Case Closed
Status Date:	11/29/2012
Lead Agency:	CENTRAL COAST RWQCB (REGION 3)
Caseworker:	DE
Local Agency:	Not reported
RB Case Number:	Not reported
LOC Case Number:	Not reported
File Location:	Regional Board
Potential Media Affect:	Not reported
EDR Link ID:	T10000013340
Potential Contaminants of Concern:	Total Petroleum Hydrocarbons (TPH)
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

A7 **STS POWER PLANT PERC. POND** **FINDS** **1023236931**
COAST ROAD AND HONDA RIDGE RD **N/A**
< 1/8 **VANDENBERG AFB, CA 93937**
1 ft.

Site 5 of 7 in cluster A

Relative: Higher
Actual: 114 ft.

FINDS:
Registry ID: 110065244550

Click Here for FRS Facility Detail Report:

Environmental Interest/Information System:
STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

A8 **STS POWER PLANT PERC. POND** **WDS** **S102006919**
COAST ROAD AND HONDA RIDGE RD **N/A**
< 1/8 **VANDENBERG AFB, CA 93937**
1 ft.

Site 6 of 7 in cluster A

Relative: Higher
Actual: 114 ft.

WDS:

Name:	STS POWER PLANT PERC. POND
Address:	COAST ROAD AND HONDA RIDGE RD
City:	VANDENBERG AFB
Facility ID:	Central Coastal 420707020
Facility Type:	Industrial - Facility that treats and/or disposes of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatever nature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, water pumping.
Facility Status:	Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number:	Not reported
Subregion:	3
Facility Telephone:	Not reported

STS POWER PLANT PERC. POND (Continued) **S102006919**

Facility Contact:	Not reported
Agency Name:	US AIR FORCE 30TH SPACE WING
Agency Address:	806 13TH ST STE 116
Agency City,St,Zip:	VANDENBERG AFB 93937
Agency Contact:	JON ERICSON EXT 62122
Agency Telephone:	Not reported
Agency Type:	Federal
SIC Code:	9711
SIC Code 2:	Not reported
Primary Waste Type:	Designated/Influent or Solid Wastes that pose a significant threat to water quality because of their high concentrations (E.G., BOD, Hardness, TRF, Chloride). 'Manageable' hazardous wastes (E.G., inorganic salts and heavy metals) are included in this category.
Primary Waste:	WSHWTR
Waste Type2:	D
Waste2:	Washwater Waste (Product washwater wastes: E.G., photo reuse wastewater, vegetable washwater)
Primary Waste Type:	Designated/Influent or Solid Wastes that pose a significant threat to water quality because of their high concentrations (E.G., BOD, Hardness, TRF, Chloride). 'Manageable' hazardous wastes (E.G., inorganic salts and heavy metals) are included in this category.
Secondary Waste:	Filter Backwash Brine Waters
Secondary Waste Type:	Designated/Influent or Solid Wastes that pose a significant threat to water quality because of their high concentrations (E.G., BOD, Hardness, TRF, Chloride). 'Manageable' hazardous wastes (E.G., inorganic salts and heavy metals) are included in this category.
Design Flow:	0
Baseline Flow:	0
Reclamation:	No reclamation requirements associated with this facility.
POTW:	The facility is not a POTW.
Treat To Water:	Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.
Complexity:	Category B - Any facility having a physical, chemical, or biological waste treatment system (except for septic systems with subsurface disposal), or any Class II or III disposal site, or facilities without treatment systems that are complex, such as marinas with petroleum products, solid wastes, and sewage pump out facilities.

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9 **SOUTH BASE AREA CIRCLE** **UXO** **1024717027**
NNE **N/A**
< 1/8 **LOMPOC, CA**
0.008 mi.
42 ft.

Relative:
Higher

Actual:
120 ft.

UXO:

DoD Component:	Air Force
Installation Name:	VANDENBERG
Name:	SOUTH BASE AREA CIRCLE
Address:	Not reported
Address 2:	Not reported
City,State,Zip:	LOMPOC, CA
Site ID:	MU815
Site Type:	Multi Use Range
Latitude:	34.614800

SOUTH BASE AREA CIRCLE (Continued) **1024717027**

Longitude: -120.632400

A10 **HONDA CREEK CULVERTS REPAIR** **CIWQS** **S128692480**
SE **N/A**
< 1/8 **LOMPOC, CA 93437**
0.012 mi.
63 ft. **Site 7 of 7 in cluster A**

Relative: CIWQS:
Higher

Actual: Name: HONDA CREEK CULVERTS REPAIR
42 ft. Address: Not reported
City,State,Zip: LOMPOC, CA 93437
Agency: Vandenberg Air Force Base
Agency Address: 30 Ces/Ceiec, Vandenberg Air Force Base, CA 93437
Place/Project Type: Dredge/Fill Site
SIC/NAICS: Not reported
Region: 3
Program: CERFILLEXC
Regulatory Measure Status: Active
Regulatory Measure Type: 401 Certification
Order Number: Not reported
WDID: 34221WQ22
NPDES Number: Not reported
Adoption Date: Not reported
Effective Date: 01/24/2022
Termination Date: Not reported
Expiration/Review Date: Not reported
Design Flow: Not reported
Major/Minor: Not reported
Complexity: Not reported
TTWQ: Not reported
Enforcement Actions within 5 years: 0
Violations within 5 years: 0
Latitude: 34.6073
Longitude: -120.6347

---

11 **SIGNORELLI QUARRY** **MINES MRDS** **1025713515**
East **N/A**
< 1/8 **LOMPOC, CA 93437**
0.070 mi.
369 ft.

Relative: MINES MRDS:
Higher

Actual: Name: SIGNORELLI QUARRY
319 ft. Address: Not reported
Deposit identification Number: 10237720
City,State,Zip: LOMPOC, CALIFORNIA 93437
URL: https://mrdata.usgs.gov/mrds/show-mrds.php?dep_id=10237720
MRDS Identification Number: Not reported
MAS/MILS Identification Number: 0060830151
Region: NA
Country: United States
Primary Commodities: Flagstone
Secondary Commodities: Not reported
Tertiary Commodities: Not reported
Operation Type: Surface

SIGNORELLI QUARRY (Continued) **1025713515**

Deposit Type:	Not reported
Production Size:	Not reported
Development Status:	Producer
Ore Minerals or Materials:	Not reported
Gangue Minerals or Materials:	Not reported
Other Minerals or Materials:	Not reported
Ore Body Form:	Not reported
Workings Type:	Not reported
Mineral Deposit Model:	Not reported
Alteration Processes:	Not reported
Concentration Processes:	Not reported
Previous Names:	Not reported
Ore Controls:	Not reported
Reporter:	Ridenour, James
Host Rock Unit Name:	Not reported
Host Rock Type:	Not reported
Associated Rock Unit Name:	Not reported
Associated Rock Type Code:	Not reported
Structural Characteristics:	Not reported
Tectonic Setting:	Not reported
References:	Not reported
First Production Year:	Not reported
Began Before/After FPY:	Not reported
Last Production Year:	Not reported
Ended Before/After LPY:	Not reported
Year Discovered:	Not reported
Found Before/After YD:	Not reported
Production History:	Not reported
Discovery Information:	Not reported
Latitude:	34.60689
Longitude:	-120.62596

C12 **SOUTH VANDENBERG AFB POWERPLANT** **CERS** **S121764861**
South **BLDG. 525 COAST** **N/A**
< 1/8 **VANDENBERG AFB, CA 93437**
0.115 mi.
605 ft. **Site 1 of 3 in cluster C**

Relative: CERS:
Higher

Name:	SOUTH VANDENBERG AFB POWERPLANT
Address:	BLDG. 525 COAST
City,State,Zip:	VANDENBERG AFB, CA 93437
Site ID:	353367
CERS ID:	644079
CERS Description:	Waste Discharge Requirements

Actual:
144 ft.

C13 **SOUTH VANDENBERG AFB POWERPLANT** **WDR** **S120035247**
South **BLDG. 525 COAST ROAD** **CIWQS** **N/A**
< 1/8 **VANDENBERG AFB, CA 93437**
0.115 mi.
605 ft. **Site 2 of 3 in cluster C**

Relative: WDR:
Higher

Name:	SOUTH VANDENBERG AFB POWERPLANT
Address:	BLDG. 525 COAST ROAD
City,State,Zip:	VANDENBERG AFB, CA 93437

Actual:
144 ft.

SOUTH VANDENBERG AFB POWERPLANT (Continued) **S120035247**

Global ID: WDR100036907
Status: HISTORICAL - WDR

CIWQS:
Name: SOUTH VANDENBERG AFB POWERPLANT
Address: BLDG. 525 COAST ROAD
City,State,Zip: VANDENBERG AFB, CA 93437
Agency: US Air Force Vandenberg Air Force Base
Agency Address: 30 Ces Cecc, Vandenberg Air Force Base, CA 93437
Place/Project Type: Military Facility
SIC/NAICS: Not reported
Region: 3
Program: WDRNONMUNIPRCS
Regulatory Measure Status: Historical
Regulatory Measure Type: Enrollee - Waiver
Order Number: R3-2019-0089
WDID: 3 421206993
NPDES Number: Not reported
Adoption Date: Not reported
Effective Date: 02/09/2007
Termination Date: 09/20/2019
Expiration/Review Date: 09/20/2100
Design Flow: Not reported
Major/Minor: Not reported
Complexity: C
TTWQ: 3
Enforcement Actions within 5 years: 0
Violations within 5 years: 0
Latitude: 34.598333
Longitude: -120.637222

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14 **DEMOLISH SLC 5** **CIWQS** **S121633542**
East **DELPHY ROAD** **N/A**
1/8-1/4 **VANDENBERG AFB, CA 93437**
0.175 mi.
922 ft.

Relative:
Higher

Actual:
300 ft.

CIWQS:
Name: DEMOLISH SLC 5
Address: DELPHY ROAD
City,State,Zip: VANDENBERG AFB, CA 93437
Agency: Vandenberg AFB
Agency Address: 1028 Iceland Ave Bldg 11146, Vandenberg Afb, CA 93437
Place/Project Type: Construction - Other: Demolition
SIC/NAICS: Not reported
Region: 3
Program: CONSTW
Regulatory Measure Status: Terminated
Regulatory Measure Type: Storm water construction
Order Number: 2009-0009-DWQ
WDID: 3 42C359972
NPDES Number: CAS000002
Adoption Date: Not reported
Effective Date: 12/03/2010
Termination Date: 06/30/2011
Expiration/Review Date: Not reported
Design Flow: Not reported

DEMOLISH SLC 5 (Continued) **S121633542**

Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	34.60881
Longitude:	-120.62654

C15 **VANDENBERG SPACE FORCE BASE (FORMERLY VAFB) - SITE** **MCS** **S110168736**
South **806** **N/A**
1/8-1/4 **VANDENBERG AFB, CA 93437**
0.189 mi.
999 ft. **Site 3 of 3 in cluster C**

Relative: MCS:
Higher

Name:	VANDENBERG SPACE FORCE BASE (FORMERLY VAFB) - SITE 41 (OLD POWER PLANT 6)
Address:	806
City,State,Zip:	VANDENBERG AFB, CA 93437-5242
Global Id:	DOD100396300
Latitude:	34.5974
Longitude:	-120.6365
Case Type:	Military Cleanup Site
Status:	Completed - Case Closed
Status Date:	05/20/2010
Lead Agency:	CENTRAL COAST RWQCB (REGION 3)
Caseworker:	CHK
Local Agency:	DEPARTMENT OF TOXIC SUBSTANCES CONTROL
RB Case Number:	16626 -- 22
LOC Case Number:	42970003
File Location:	Not reported
Potential Media Affect:	Not reported
EDR Link ID:	DOD100396300
Potential Contaminants of Concern:	Not reported
Site History:	Ole Power Plant No. 6 (Site 41) is on South VAFB at the northwest intersection of Coast and SkylviewRds. The site was a was constructed in 1969 as a power plant to supply uninterrupted power to South VAFB complexes. It contained an oil/water separator and was decommissioned in 1969 and closed in 5/1997 per the PEA .

Actual:
169 ft.

Click here to access the California GeoTracker records for this facility:

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16 **REPLACE OVERHEAD FEEDERS N1 N3 N6** **CIWQS** **S112832713**
NE **7 MILES SOUTHWEST OF CA 246** **N/A**
1/8-1/4 **VANDENBERG AFB, CA 93437**
0.236 mi.
1245 ft.

Relative: CIWQS:
Higher

Name:	REPLACE OVERHEAD FEEDERS N1 N3 N6
Address:	7 MILES SOUTHWEST OF CA 246
City,State,Zip:	VANDENBERG AFB, CA 93437
Agency:	Vandenberg AFB
Agency Address:	1028 Iceland Ave Bldg 11146, Vandenberg Afb, CA 93437
Place/Project Type:	Construction - Electrical
SIC/NAICS:	Not reported

Actual:
201 ft.

REPLACE OVERHEAD FEEDERS N1 N3 N6 (Continued) **S112832713**

Region:	3
Program:	CONSTW
Regulatory Measure Status:	Terminated
Regulatory Measure Type:	Storm water construction
Order Number:	2009-0009-DWQ
WDID:	3 42C365189
NPDES Number:	CAS000002
Adoption Date:	Not reported
Effective Date:	12/07/2012
Termination Date:	07/21/2014
Expiration/Review Date:	Not reported
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	34.6127
Longitude:	-120.62899

D17 **COAST ROAD CULVERT REPAIR PHASE II** **CIWQS** **S121630039**
South **COAST ROAD** **N/A**
1/4-1/2 **VANDENBERG AFB, CA 93436**
0.431 mi.
2277 ft. **Site 1 of 4 in cluster D**

Relative:
Higher

Actual:
125 ft.

CIWQS:

Name:	COAST ROAD CULVERT REPAIR PHASE II
Address:	COAST ROAD
City,State,Zip:	VANDENBERG AFB, CA 93436
Agency:	Vandenberg Air Force Base
Agency Address:	30 Ces/Ceiec, Vandenberg Air Force Base, CA 93437
Place/Project Type:	Dredge/Fill Site
SIC/NAICS:	Not reported
Region:	3
Program:	CERFILLEXC
Regulatory Measure Status:	Historical
Regulatory Measure Type:	Enrollee - WDR
Order Number:	2004-0004-DWQ
WDID:	34217WQ30
NPDES Number:	Not reported
Adoption Date:	Not reported
Effective Date:	07/26/2017
Termination Date:	11/01/2017
Expiration/Review Date:	07/26/2022
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0
Violations within 5 years:	0
Latitude:	34.593686
Longitude:	-120.637147

D18 **EMERGENCY VAFB CULVERT REPAIR 2018** **CERS** **S121785256**
South **COAST** **N/A**
1/4-1/2 **LOMPOC, CA 93436**
0.431 mi.
2277 ft. **Site 2 of 4 in cluster D**

Relative: CERS:
Higher

Actual:
125 ft.

Name:	EMERGENCY VAFB CULVERT REPAIR 2018
Address:	COAST
City,State,Zip:	LOMPOC, CA 93436
Site ID:	436043
CERS ID:	845010
CERS Description:	Wetlands - Fill and Dredge Material

D19 **COAST ROAD CULVERT REPAIR PHASE II** **CERS** **S121781937**
South **COAST** **N/A**
1/4-1/2 **VANDENBERG AFB, CA 93436**
0.431 mi.
2277 ft. **Site 3 of 4 in cluster D**

Relative: CERS:
Higher

Actual:
125 ft.

Name:	COAST ROAD CULVERT REPAIR PHASE II
Address:	COAST
City,State,Zip:	VANDENBERG AFB, CA 93436
Site ID:	424747
CERS ID:	837516
CERS Description:	Wetlands - Fill and Dredge Material

D20 **EMERGENCY VAFB CULVERT REPAIR 2018** **CIWQS** **S122350099**
South **COAST ROAD** **N/A**
1/4-1/2 **LOMPOC, CA 93436**
0.431 mi.
2277 ft. **Site 4 of 4 in cluster D**

Relative: CIWQS:
Higher

Actual:
125 ft.

Name:	EMERGENCY VAFB CULVERT REPAIR 2018
Address:	COAST ROAD
City,State,Zip:	LOMPOC, CA 93436
Agency:	US Air Force Vandenberg Air Force Base
Agency Address:	30 Ces Cecc, Vandenberg Air Force Base, CA 93437
Place/Project Type:	Dredge/Fill Site
SIC/NAICS:	Not reported
Region:	3
Program:	CERFILLEXC
Regulatory Measure Status:	Historical
Regulatory Measure Type:	Enrollee - 401 Certification
Order Number:	RGP 63
WDID:	34218WQ13
NPDES Number:	Not reported
Adoption Date:	Not reported
Effective Date:	02/16/2018
Termination Date:	06/01/2021
Expiration/Review Date:	06/01/2021
Design Flow:	Not reported
Major/Minor:	Not reported
Complexity:	Not reported
TTWQ:	Not reported
Enforcement Actions within 5 years:	0

EMERGENCY VAFB CULVERT REPAIR 2018 (Continued) **S122350099**

Violations within 5 years:	0
Latitude:	34.593686
Longitude:	-120.637147

21
NE
1/2-1
0.954 mi.
5038 ft.

TRAINING AND MANEAUVER AREA MEC AREA2 **UXO** **1024717881**
N/A

LOMPOC, CA

Relative:
Higher

Actual:
385 ft.

UXO:

DoD Component:	Air Force
Installation Name:	VANDENBERG
Name:	TRAINING AND MANEAUVER AREA MEC AREA2
Address:	Not reported
Address 2:	Not reported
City,State,Zip:	LOMPOC, CA
Site ID:	TM817B
Site Type:	Training and Maneuver Area
Latitude:	34.625500
Longitude:	-120.618400

E22
South
> 1
1.155 mi.
6096 ft.

PT ARGUELLO RAD SITE B-30 **FUDS** **1024903621**
N/A

LOMPOC, CA

Site 1 of 2 in cluster E

Relative:
Higher

Actual:
364 ft.

FUDS:

EPA Region:	09
Installation ID:	CA99799F556600
Congressional District Number:	24
Name:	PT ARGUELLO RAD SITE B-30
FUDS Number:	J09CA0556
City:	LOMPOC
State:	CA
County:	SANTA BARBARA
Object ID:	8640
USACE Division:	spd
USACE District:	spl
Status:	Properties without projects
Current Owner:	Not reported
EMS Map Link:	https://fudsportal.usace.army.mil/ems/inventory/map?id=53896
Eligibility:	Ineligible
Has Projects:	No
NPL Status:	Not on the NPL
Property History:	SECRET LONG-RANGE RADAR SITE
Project Required:	No
Feature Description:	Not reported
Latitude:	34.58388889
Longitude:	-120.63194444

E23 **POINT ARGUELLO RAD B-30** **ENVIROSTOR** **S107737106**
South **N/A**
> 1 **LOMPOC, CA**
1.156 mi.
6104 ft. **Site 2 of 2 in cluster E**

Relative:
Higher

Actual:
365 ft.

ENVIROSTOR:

Name:	POINT ARGUELLO RAD B-30
Address:	Not reported
City,State,Zip:	LOMPOC, CA
Facility ID:	80000420
Status:	Inactive - Needs Evaluation
Status Date:	07/01/2005
Site Code:	Not reported
Site Type:	Military Evaluation
Site Type Detailed:	FUDS
Acres:	1
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not reported
Supervisor:	Douglas Bautista
Division Branch:	Cleanup Cypress
Assembly:	35
Senate:	19
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	DERA
Latitude:	34.58388
Longitude:	-120.6319
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	NONE SPECIFIED
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	CA99799F556600
Alias Type:	Federal Facility ID
Alias Name:	J09CA0556
Alias Type:	INPR
Alias Name:	80000420
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Inventory Project Report (INPR)
Completed Date:	06/22/1989
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

24
East
> 1
1.336 mi.
7056 ft.

SOUTH BASE AREA MEC AREA2
LOMPOC, CA

UXO **1024717029**
N/A

Relative:
Higher

Actual:
967 ft.

UXO:

DoD Component:	Air Force
Installation Name:	VANDENBERG
Name:	SOUTH BASE AREA MEC AREA2
Address:	Not reported
Address 2:	Not reported
City,State,Zip:	LOMPOC, CA
Site ID:	MU816B
Site Type:	Multi Use Range
Latitude:	34.610000
Longitude:	-120.596400

F25
South
> 1
1.468 mi.
7753 ft.

NAVAL DIRECTION FINDER
POINT ARGUELLO, CA
Site 1 of 4 in cluster F

FUDS **1024903878**
N/A

Relative:
Higher

Actual:
128 ft.

FUDS:

EPA Region:	09
Installation ID:	CA99799F991400
Congressional District Number:	24
Name:	NAVAL DIRECTION FINDER
FUDS Number:	J09CA7092
City:	POINT ARGUELLO
State:	CA
County:	SANTA BARBARA
Object ID:	8399
USACE Division:	spd
USACE District:	spl
Status:	Properties with all projects at site closeout
Current Owner:	FED: FEDERAL FEDERAL
EMS Map Link:	https://fudsportal.usace.army.mil/ems/inventory/map?id=54006
Eligibility:	Eligible
Has Projects:	Yes
NPL Status:	Not on the NPL
Property History:	The U.S. Coast Guard Bureau of Lighthouses issued a series of permits to the Navy from 22 May 1917 to 16 December 1938 for use of a portion of the 50-acre Point Arguello Lighthouse Reservation. The Navy constructed a direction finder station at the site, which provided bearings for navigation of ships in the vicinity of Point Arguello. The Navy also beneficially used existing living quarters and a powerhouse. They ceased operations at the facility between April 1941 and October 1943. In 1954, the Coast Guard relocated the station approximately 200 yd to the north side of Point Road. The Coast Guard disposed of structures at the original site in 1964. The Army or the Air Force may have constructed and used a mechanical weather station at the site from 1966 to 1968. Licenses issued to the U.S. (unspecified) and U.S. Army expired on 1 June 1968 and 30 May 1967, respectively. The property is currently being utilized as a site for Coast Guard Aids to Navigation, consisting of a light, fog signal, and radio beacon.
Project Required:	Yes

NAVAL DIRECTION FINDER (Continued) **1024903878**

Feature Description: Not reported
Latitude: 34.57888889
Longitude: -120.6425

FUDS Detail as of Jan 2015:
Fiscal Year: 2013
Federal Facility ID: CA9799F9914
RAB: Not reported
NPL Status: Not Listed
Description: The U.S. Coast Guard Bureau of Lighthouses issued a series of permits to the Navy, from 22 May 1917 to 16 December 1938, for use of a portion of the 50-acre Point Arguello Lighthouse Reservation. The Naval Direction Finder is located at Point Arguello, between the sea cliff and Point Road, on South Vandenberg Air Force Base, Santa Barbara County, California. The property is being used as a site for Coast Guard aids to navigation, consisting of a light, fog signal, and radio beacon. Navy improvements consisted of a fog signal tower, a radio beacon tower, a radio direction finder house, an operating building, various storage buildings, a transformer building, a pump house, two garages, and a 2,500-gal. (or possibly 3,000-gal.) gasoline underground fuel storage tank. Beneficial use of Navy improvements consists of current use of a building foundation as a mount for an existing National Oceanic and Atmospheric Administration weather station tower and previous use of a storage building for a diesel-powered generator. Navy improvements that have not been beneficially used include foundations for most of the former buildings and beacon towers.
History: The U.S. Coast Guard Bureau of Lighthouses issued a series of permits to the Navy from 22 May 1917 to 16 December 1938 for use of a portion of the 50-acre Point Arguello Lighthouse Reservation. The Navy constructed a direction finder station at the site, which provided bearings for navigation of ships in the vicinity of Point Arguello. The Navy also beneficially used existing living quarters and a powerhouse. They ceased operations at the facility between April 1941 and October 1943. In 1954, the Coast Guard relocated the station approximately 200 yd to the north side of Point Road. The Coast Guard disposed of structures at the original site in 1964. The Army or the Air Force may have constructed and used a mechanical weather station at the site from 1966 to 1968. Licenses issued to the U.S. (unspecified) and U.S. Army expired on 1 June 1968 and 30 May 1967, respectively. The property is currently being utilized as a site for Coast Guard Aids to Navigation, consisting of a light, fog signal, and radio beacon.
CTC: 108.90000000000001
Current Program: Not reported
Future Program: Not reported
Institutional ID: 54006

F26 **PT ARGUELLO LORAN STA** **FUDS** **1024903620**
South **N/A**
> 1 **LOMPOC, CA**
1.468 mi.
7753 ft. **Site 2 of 4 in cluster F**

Relative: **Higher**
Actual: **128 ft.**

FUDS:

EPA Region:	09
Installation ID:	CA99799F556500
Congressional District Number:	24
Name:	PT ARGUELLO LORAN STA
FUDS Number:	J09CA0555
City:	LOMPOC
State:	CA
County:	SANTA BARBARA
Object ID:	1265
USACE Division:	spd
USACE District:	spl
Status:	Properties without projects
Current Owner:	Not reported
EMS Map Link:	https://fudsportal.usace.army.mil/ems/inventory/map?id=61139
Eligibility:	Ineligible
Has Projects:	No
NPL Status:	Not on the NPL
Property History:	Not reported
Project Required:	No
Feature Description:	Not reported
Latitude:	34.57888889
Longitude:	-120.6425

F27 **NAVAL DIRECTION FINDER** **ENVIROSTOR** **S107736835**
South **N/A**
> 1 **POINT ARGUELLO, CA**
1.469 mi.
7756 ft. **Site 3 of 4 in cluster F**

Relative: **Higher**
Actual: **128 ft.**

ENVIROSTOR:

Name:	NAVAL DIRECTION FINDER
Address:	Not reported
City,State,Zip:	POINT ARGUELLO, CA
Facility ID:	80001048
Status:	Inactive - Needs Evaluation
Status Date:	07/01/2005
Site Code:	Not reported
Site Type:	Military Evaluation
Site Type Detailed:	FUDS
Acres:	50
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not reported
Supervisor:	Douglas Bautista
Division Branch:	Cleanup Cypress
Assembly:	35
Senate:	19
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	DERA

NAVAL DIRECTION FINDER (Continued) **S107736835**

Latitude: 34.57888
Longitude: -120.6425
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: NONE SPECIFIED
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: CA99799F991400
Alias Type: Federal Facility ID
Alias Name: J09CA7092
Alias Type: INPR
Alias Name: 80001048
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: Not reported
Completed Sub Area Name: Not reported
Completed Document Type: Not reported
Completed Date: Not reported
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

F28 **PT ARGUELLO LORAN STATION** **ENVIROSTOR** **S107737105**
South **N/A**
> 1 **LOMPOC, CA**
1.469 mi.
7756 ft. **Site 4 of 4 in cluster F**

Relative: Higher
Actual: 128 ft.

ENVIROSTOR:
Name: PT ARGUELLO LORAN STATION
Address: Not reported
City,State,Zip: LOMPOC, CA
Facility ID: 80000419
Status: Inactive - Needs Evaluation
Status Date: 07/01/2005
Site Code: Not reported
Site Type: Military Evaluation
Site Type Detailed: FUDS
Acres: 1
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Not reported
Supervisor: Douglas Bautista
Division Branch: Cleanup Cypress
Assembly: 35
Senate: 19
Special Program: Not reported
Restricted Use: NO

PT ARGUELLO LORAN STATION (Continued) **S107737105**

Site Mgmt Req: NONE SPECIFIED
Funding: DERA
Latitude: 34.57888
Longitude: -120.6425
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: NONE SPECIFIED
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: CA99799F556500
Alias Type: Federal Facility ID
Alias Name: J09CA0555
Alias Type: INPR
Alias Name: 80000419
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: Not reported
Completed Sub Area Name: Not reported
Completed Document Type: Not reported
Completed Date: Not reported
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Count: 38 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
VANDENBERG AFB	S105027201	FACILITY 13017-1	TANK N. 00456	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027200	FACILITY 11455-1	TANK NO LS-2	93437	LUST, HIST CORTESE
VANDENBERG AFB	S103821429	FACILITY 11002-1	TANK NO 11002	93437	LUST
VANDENBERG AFB	S101303553	FACILITY 8009-1	UNKNOWN TANK NO 00353	93437	LUST
VANDENBERG AFB	S101303551	FACILITY 5008-1	UNKNOWN TANK NO 00195	93437	LUST
VANDENBERG AFB	S101303550	FACILITY 11456-1	UNKNOWN TANK NO LS-1	93437	LUST
VANDENBERG AFB	S101303549	FACILITY 12505-1	UNKNOWN TANK NO HBH-A	93437	LUST
VANDENBERG AFB	S105027224	FACILITY 7312-4	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027223	FACILITY 13004-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027222	FACILITY 13026-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027221	FACILITY 13014-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027220	FACILITY 13421-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027219	FACILITY 13501-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027218	FACILITY 7003-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027217	FACILITY 8110-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027216	FACILITY 8122-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027215	FACILITY 4230-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027214	FACILITY 5108-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027213	FACILITY 6007-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027212	FACILITY 2005-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027211	FACILITY 5210-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027210	FACILITY 5329-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027209	FACILITY 6204-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027208	FACILITY 2155-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027207	FACILITY 8020-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S105027206	FACILITY 8206-1	UNKNOWN TANK N. 00169	93437	LUST, HIST CORTESE
VANDENBERG AFB	S102429726	FACILITY 3106-1	UNKNOWN TANK NO 00054	93437	LUST
VANDENBERG AFB	S103821425	FACILITY 10201-1	UNKNOWN TANK NO 00409	93437	LUST
VANDENBERG AFB	S103821424	FACILITY 13011-1	UNKNOWN TANK NO 00458	93437	LUST
VANDENBERG AFB	S103821423	FACILITY 2206-1	UNKNOWN TANK NO 00015	93437	LUST
VANDENBERG AFB	S103821422	FACILITY 8128-1	UNKNOWN TANK NO 00318	93437	LUST
VANDENBERG AFB	S103891048	FACILITY 13522-1	UNKNOWN TANK NO 00464	93437	LUST
VANDENBERG AFB	S103891047	FACILITY 13002-1	UNKNOWN TANK NO 00487	93437	LUST
VANDENBERG AFB	S103891043	FACILITY 11124-1	UNKNOWN TANK NO 00433	93437	LUST
VANDENBERG AFB	S103891042	FACILITY 3215-1	UNKNOWN TANK NO 00080	93437	LUST
VANDENBERG AFB	S103891038	FACILITY 6015-1	UNKNOWN TANK NO 00220	93437	LUST
VANDENBERG AFB	S103891037	FACILITY 2223-1	UNKNOWN TANK NO 00031	93437	LUST
VANDENBERG AFB	S103891035	FACILITY 6206-1	UNKNOWN TANK NO 00231	93437	LUST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 05/25/2021
Date Data Arrived at EDR: 06/24/2021
Date Made Active in Reports: 09/20/2021
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 09/06/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/19/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 71

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/03/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 06/21/2022
Number of Days to Update: 6

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 07/25/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 07/25/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/09/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 81

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/08/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Quarterly

Lists of state and tribal leaking storage tanks

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/28/2021
Date Data Arrived at EDR: 06/11/2021
Date Made Active in Reports: 09/07/2021
Number of Days to Update: 88
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35
Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36
Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11
Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 10/14/2021
Date Data Arrived at EDR: 11/05/2021
Date Made Active in Reports: 02/01/2022
Number of Days to Update: 88
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 06/01/2022
Date Data Arrived at EDR: 06/09/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/24/2022
Number of Days to Update: 78

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 06/02/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 79

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/07/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 06/13/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/14/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/20/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/28/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/11/2022
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/16/2022
Number of Days to Update: 64

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

Lists of state and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 07/25/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Varies

Lists of state and tribal brownfield sites

BROWNFIELDS: Considered Brownfieds Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 06/21/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 09/08/2022
Number of Days to Update: 79

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 02/23/2022
Date Data Arrived at EDR: 03/10/2022
Date Made Active in Reports: 03/10/2022
Number of Days to Update: 0

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/09/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/23/2022
Number of Days to Update: 77

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 08/12/2022
Date Data Arrived at EDR: 08/16/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 10

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/16/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 07/21/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 07/21/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 04/30/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/18/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 07/25/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 07/25/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 01/20/2021
Date Made Active in Reports: 04/08/2021
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 74

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 04/30/2022
Date Data Arrived at EDR: 05/24/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 66

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/18/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Quarterly

AQUEOUS FOAM: Former Fire Training Facility Assessments Listing

Airports shown on this list are those believed to use Aqueous Film Forming Foam (AFFF), and certified by the Federal Aviation Administration (FAA) under Title 14, Code of Federal Regulations (CFR), Part 139 (14 CFR Part 139). This list was created by SWRCB using information available from the FAA. Location points shown are from the latitude and longitude listed on the FAA airport master record.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 12/10/2021
Date Made Active in Reports: 02/25/2022
Number of Days to Update: 77

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 09/06/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/24/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 05/05/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/21/2022
Number of Days to Update: 76

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 74

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Quarterly

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 05/25/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 08/11/2022
Number of Days to Update: 77

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 05/31/2022
Date Data Arrived at EDR: 05/31/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 79

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/19/2022
Date Data Arrived at EDR: 09/19/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 11

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 06/30/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 74

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 05/24/2022
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 06/28/2022
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 08/11/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 50

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/13/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/03/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/03/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 06/20/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/04/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/12/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 11

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/27/2022
Date Data Arrived at EDR: 05/04/2022
Date Made Active in Reports: 05/10/2022
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 64

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/10/2022
Date Data Arrived at EDR: 06/14/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 69

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/22/2022
Number of Days to Update: 84
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/04/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 07/21/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/30/2022
Date Data Arrived at EDR: 07/21/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 71

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 03/02/2022
Date Made Active in Reports: 03/25/2022
Number of Days to Update: 23

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/26/2021
Date Data Arrived at EDR: 07/27/2021
Date Made Active in Reports: 10/22/2021
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/24/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 07/26/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 08/01/2022
Date Data Arrived at EDR: 08/02/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 59

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/03/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 08/31/2022
Number of Days to Update: 14

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 08/22/2022
Number of Days to Update: 68

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 05/13/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 13

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 06/25/2022
Date Data Arrived at EDR: 07/01/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 91

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 09/30/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites
A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 01/11/2022
Date Made Active in Reports: 02/14/2022
Number of Days to Update: 34
Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

DOCKET HWC: Hazardous Waste Compliance Docket Listing
A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82
Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/22/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/11/2022
Date Data Arrived at EDR: 08/11/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 50
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6
Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 06/21/2022
Date Data Arrived at EDR: 06/21/2022
Date Made Active in Reports: 09/08/2022
Number of Days to Update: 79
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 12/07/2021
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 05/17/2022
Number of Days to Update: 8
Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/27/2021
Date Data Arrived at EDR: 09/01/2021
Date Made Active in Reports: 11/19/2021
Number of Days to Update: 79

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Annually

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 05/25/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 08/11/2022
Number of Days to Update: 77

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 05/20/2022
Date Data Arrived at EDR: 05/20/2022
Date Made Active in Reports: 08/09/2022
Number of Days to Update: 81

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 08/16/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/13/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 78

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/16/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 07/12/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 09/29/2022
Number of Days to Update: 73

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 07/18/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 07/06/2022
Date Data Arrived at EDR: 07/21/2022
Date Made Active in Reports: 10/03/2022
Number of Days to Update: 74

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 08/09/2022
Date Data Arrived at EDR: 08/10/2022
Date Made Active in Reports: 08/30/2022
Number of Days to Update: 20

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 08/02/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 07/05/2022
Date Made Active in Reports: 09/19/2022
Number of Days to Update: 76

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Annually

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/17/2022
Date Made Active in Reports: 08/03/2022
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/11/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 07/05/2022
Date Data Arrived at EDR: 07/05/2022
Date Made Active in Reports: 09/19/2022
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 10/03/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/23/2022
Number of Days to Update: 77

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 05/06/2022
Date Data Arrived at EDR: 05/31/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 79

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 05/09/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/29/2022
Number of Days to Update: 81
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/08/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 05/31/2022
Date Data Arrived at EDR: 05/31/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 79
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/23/2022
Number of Days to Update: 77
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 06/10/2022
Date Data Arrived at EDR: 06/10/2022
Date Made Active in Reports: 08/26/2022
Number of Days to Update: 77
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/23/2022
Number of Days to Update: 77
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 02/11/2021
Date Data Arrived at EDR: 07/01/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 90

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 10/06/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing
In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 06/06/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/24/2022
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System
The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 08/16/2022
Date Data Arrived at EDR: 08/17/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 1
Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 07/18/2022
Date Data Arrived at EDR: 07/18/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 74
Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)

Produced water ponds sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)

Sampling point - public sites

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)

Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 05/23/2022
Date Data Arrived at EDR: 05/23/2022
Date Made Active in Reports: 06/02/2022
Number of Days to Update: 10

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System

DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/05/2022
Date Data Arrived at EDR: 04/05/2022
Date Made Active in Reports: 04/26/2022
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 10/03/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

PCS ENF: Enforcement data

No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Varies

PCS: Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

PCS INACTIVE: Listing of Inactive PCS Permits

An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/28/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

MINES MRDS: Mineral Resources Data System

Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 08/17/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites
A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks
Underground storage tank sites located in Alameda county.

Date of Government Version: 06/29/2022
Date Data Arrived at EDR: 06/29/2022
Date Made Active in Reports: 07/21/2022
Number of Days to Update: 22

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 07/22/2022
Date Data Arrived at EDR: 07/27/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 5

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 06/14/2022
Date Data Arrived at EDR: 06/15/2022
Date Made Active in Reports: 09/02/2022
Number of Days to Update: 79

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 07/20/2022
Date Data Arrived at EDR: 07/20/2022
Date Made Active in Reports: 10/03/2022
Number of Days to Update: 75

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 05/04/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 83

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/09/2022
Date Made Active in Reports: 09/01/2022
Number of Days to Update: 23

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 07/20/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/28/2021
Date Data Arrived at EDR: 12/21/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 72

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 09/30/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/12/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 07/13/2022
Date Data Arrived at EDR: 07/14/2022
Date Made Active in Reports: 09/29/2022
Number of Days to Update: 77

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 05/06/2022
Date Data Arrived at EDR: 05/12/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 81

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 05/06/2022
Date Data Arrived at EDR: 05/12/2022
Date Made Active in Reports: 08/01/2022
Number of Days to Update: 81

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/03/2020
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/14/2021
Number of Days to Update: 78

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 07/22/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 07/06/2022
Date Data Arrived at EDR: 07/07/2022
Date Made Active in Reports: 09/21/2022
Number of Days to Update: 76

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 09/27/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/11/2022
Date Data Arrived at EDR: 07/11/2022
Date Made Active in Reports: 09/23/2022
Number of Days to Update: 74

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 10/07/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2022
Date Data Arrived at EDR: 01/21/2022
Date Made Active in Reports: 04/11/2022
Number of Days to Update: 80

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory
A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/19/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills
This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 01/10/2022
Date Data Arrived at EDR: 01/12/2022
Date Made Active in Reports: 04/04/2022
Number of Days to Update: 82

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory
A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 01/13/2022
Date Data Arrived at EDR: 03/21/2022
Date Made Active in Reports: 06/15/2022
Number of Days to Update: 86

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory
A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 03/22/2022
Date Data Arrived at EDR: 06/24/2022
Date Made Active in Reports: 09/08/2022
Number of Days to Update: 76
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 09/20/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 05/26/2021
Date Data Arrived at EDR: 07/09/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 82
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 07/14/2022
Next Scheduled EDR Contact: 10/31/2022
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65
Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 04/22/2022
Date Data Arrived at EDR: 07/19/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 73
Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72
Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 4

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 08/16/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/15/2022
Date Data Arrived at EDR: 02/17/2022
Date Made Active in Reports: 05/11/2022
Number of Days to Update: 83

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/21/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 3

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 07/19/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 80

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 08/03/2022
Number of Days to Update: 77

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 04/08/2022
Date Data Arrived at EDR: 05/03/2022
Date Made Active in Reports: 07/20/2022
Number of Days to Update: 78

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/01/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 05/25/2022
Date Data Arrived at EDR: 05/26/2022
Date Made Active in Reports: 06/01/2022
Number of Days to Update: 6
Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64
Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 07/07/2022
Date Data Arrived at EDR: 07/08/2022
Date Made Active in Reports: 09/21/2022
Number of Days to Update: 75
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 07/07/2022
Date Data Arrived at EDR: 07/08/2022
Date Made Active in Reports: 09/21/2022
Number of Days to Update: 75
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 06/18/2021
Date Data Arrived at EDR: 09/28/2021
Date Made Active in Reports: 12/14/2021
Number of Days to Update: 77
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 09/30/2022
Next Scheduled EDR Contact: 01/09/2023
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/04/2022
Date Data Arrived at EDR: 06/30/2022
Date Made Active in Reports: 07/05/2022
Number of Days to Update: 5
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 09/26/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 07/27/2022
Date Data Arrived at EDR: 07/27/2022
Date Made Active in Reports: 10/11/2022
Number of Days to Update: 76

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 05/12/2022
Date Data Arrived at EDR: 05/12/2022
Date Made Active in Reports: 05/18/2022
Number of Days to Update: 6

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database
The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 05/31/2022
Date Data Arrived at EDR: 05/31/2022
Date Made Active in Reports: 08/18/2022
Number of Days to Update: 79

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 08/25/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 10/27/2021
Date Data Arrived at EDR: 03/04/2022
Date Made Active in Reports: 05/31/2022
Number of Days to Update: 88

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing
A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/22/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 86

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24
Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing
Cupa facilities

Date of Government Version: 05/05/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 83
Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10
Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 05/05/2022
Date Data Arrived at EDR: 05/06/2022
Date Made Active in Reports: 07/20/2022
Number of Days to Update: 75
Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Quarterly

SAN FRANCISO COUNTY:

SAN FRANCISCO MAHER: Maher Ordinance Property Listing
a listing of properties that fall within a Maher Ordinance, for all of San Francisco

Date of Government Version: 01/18/2022
Date Data Arrived at EDR: 01/20/2022
Date Made Active in Reports: 04/27/2022
Number of Days to Update: 97
Source: San Francisco Planning
Telephone: 628-652-7483
Last EDR Contact: 10/07/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 09/07/2022
Next Scheduled EDR Contact: 12/26/2022
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 08/04/2022
Number of Days to Update: 78

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/09/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 08/29/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 05/16/2022
Date Data Arrived at EDR: 05/18/2022
Date Made Active in Reports: 08/04/2022
Number of Days to Update: 78

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13
Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 08/15/2022
Next Scheduled EDR Contact: 12/05/2022
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82
Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90
Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51
Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/09/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68
Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84
Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 07/02/2021
Date Data Arrived at EDR: 07/06/2021
Date Made Active in Reports: 07/14/2021
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 06/30/2021
Date Data Arrived at EDR: 06/30/2021
Date Made Active in Reports: 09/24/2021
Number of Days to Update: 86

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 09/13/2022
Next Scheduled EDR Contact: 01/02/2023
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/10/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 83

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 10/04/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 05/03/2022
Date Data Arrived at EDR: 05/27/2022
Date Made Active in Reports: 08/11/2022
Number of Days to Update: 76

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 08/23/2022
Next Scheduled EDR Contact: 12/12/2022
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 07/27/2022
Date Data Arrived at EDR: 07/27/2022
Date Made Active in Reports: 10/11/2022
Number of Days to Update: 76

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 07/26/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 07/13/2022
Date Data Arrived at EDR: 07/14/2022
Date Made Active in Reports: 09/29/2022
Number of Days to Update: 77

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 04/26/2021
Date Data Arrived at EDR: 04/28/2021
Date Made Active in Reports: 07/13/2021
Number of Days to Update: 76

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 11/14/2022
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 10/11/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 05/26/2022
Date Data Arrived at EDR: 07/21/2022
Date Made Active in Reports: 09/30/2022
Number of Days to Update: 71

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/02/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 05/26/2022
Date Data Arrived at EDR: 07/25/2022
Date Made Active in Reports: 10/05/2022
Number of Days to Update: 72
Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 10/17/2022
Next Scheduled EDR Contact: 01/30/2023
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 05/26/2022
Date Data Arrived at EDR: 06/07/2022
Date Made Active in Reports: 08/24/2022
Number of Days to Update: 78
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/31/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 06/22/2022
Date Data Arrived at EDR: 06/30/2022
Date Made Active in Reports: 09/14/2022
Number of Days to Update: 76
Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 09/21/2022
Next Scheduled EDR Contact: 01/10/2023
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 05/03/2022
Date Data Arrived at EDR: 05/05/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 84
Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 08/02/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 05/08/2022
Date Data Arrived at EDR: 05/09/2022
Date Made Active in Reports: 07/28/2022
Number of Days to Update: 80
Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/08/2022
Next Scheduled EDR Contact: 11/21/2022
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 10/03/2022
Next Scheduled EDR Contact: 01/16/2023
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 10/29/2021
Date Made Active in Reports: 01/19/2022
Number of Days to Update: 82

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 07/29/2022
Next Scheduled EDR Contact: 11/07/2022
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/05/2022
Next Scheduled EDR Contact: 01/23/2023
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 80

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/10/2022
Next Scheduled EDR Contact: 11/28/2022
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 08/29/2022
Next Scheduled EDR Contact: 12/19/2022
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

HONDA BRIDGE
COAST ROAD/HONDA RIDGE ROAD
LOMPOC, CA 93437

TARGET PROPERTY COORDINATES

Latitude (North):	34.608022 - 34ˆ 36’ 28.88’’
Longitude (West):	120.635908 - 120ˆ 38’ 9.27’’
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	716777.9
UTM Y (Meters):	3831920.2
Elevation:	42 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	12004657 POINT ARGUELLO, CA
Version Date:	2018
Northeast Map:	12004683 SURF, CA
Version Date:	2018
Southeast Map:	12004689 TRANQUILLON MOUNTAIN, CA
Version Date:	2018
Northwest Map:	12007715 SURF OE W, CA
Version Date:	2018

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

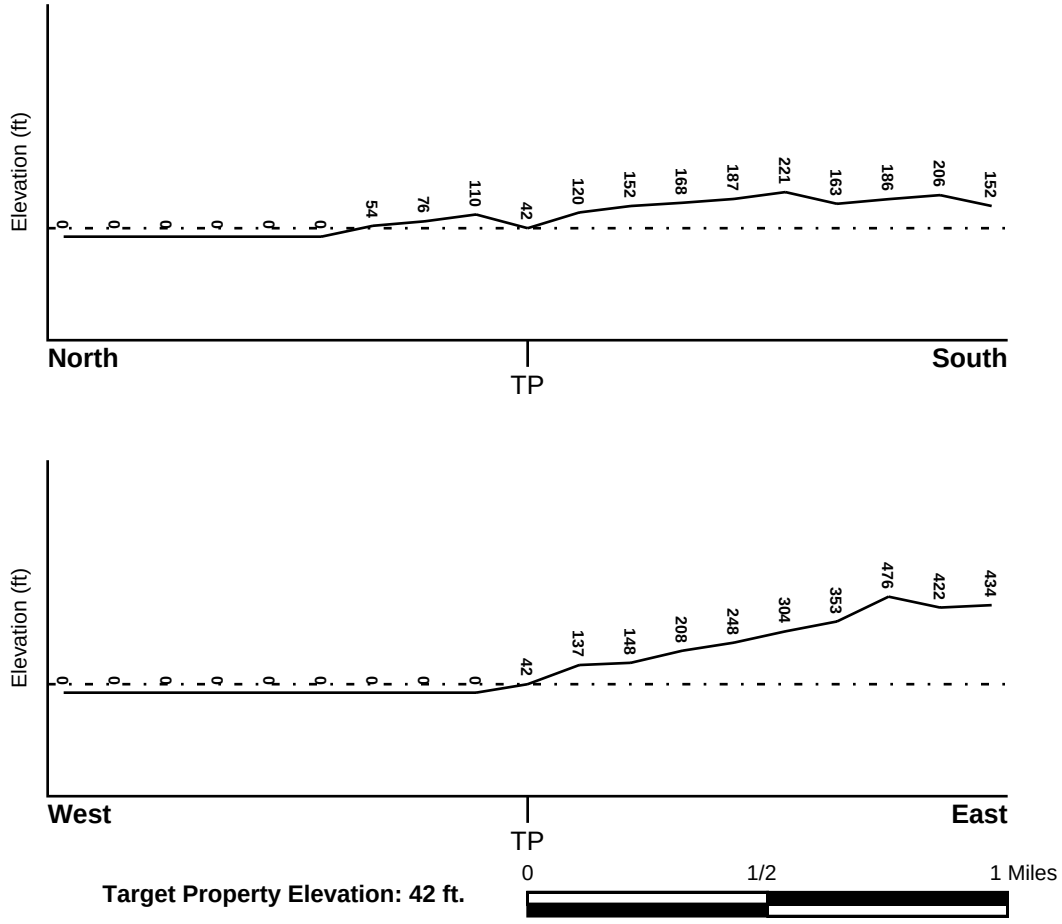
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General WNW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 42 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
0603310505B	FEMA Q3 Flood data

Additional Panels in search area:	FEMA Source Type
0603310506C	FEMA Q3 Flood data
0603310508C	FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
POINT ARGUELLO	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Cenozoic
System:	Tertiary
Series:	Miocene
Code:	Tm *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	MARINA
Soil Surface Texture:	sand
Hydrologic Group:	Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.
Soil Drainage Class:	Somewhat excessive. Soils have high hydraulic conductivity and low water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	MODERATE
Depth to Bedrock Min:	> 60 inches
Depth to Bedrock Max:	> 60 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	27 inches	sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 20.00 Min: 6.00	Max: 7.30 Min: 5.10
2	27 inches	50 inches	sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 2.00 Min: 0.60	Max: 7.30 Min: 5.10
3	50 inches	88 inches	sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 20.00 Min: 6.00	Max: 7.30 Min: 5.10

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: loamy sand
loam
sandy loam

Surficial Soil Types: loamy sand
loam
sandy loam

Shallow Soil Types: sand
clay

Deeper Soil Types: stratified
cemented
weathered bedrock
loam
very fine sandy loam

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS40000148084	1/4 - 1/2 Mile SE
2	USGS40000147906	1/2 - 1 Mile SSE
3	USGS40000147936	1/2 - 1 Mile SE
4	USGS40000147974	1/2 - 1 Mile SE
5	USGS40000147829	1/2 - 1 Mile SSE
6	USGS40000147806	1/2 - 1 Mile South
7	USGS40000148233	1/2 - 1 Mile East
8	USGS40000147768	1/2 - 1 Mile SSE
9	USGS40000148248	1/2 - 1 Mile East

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

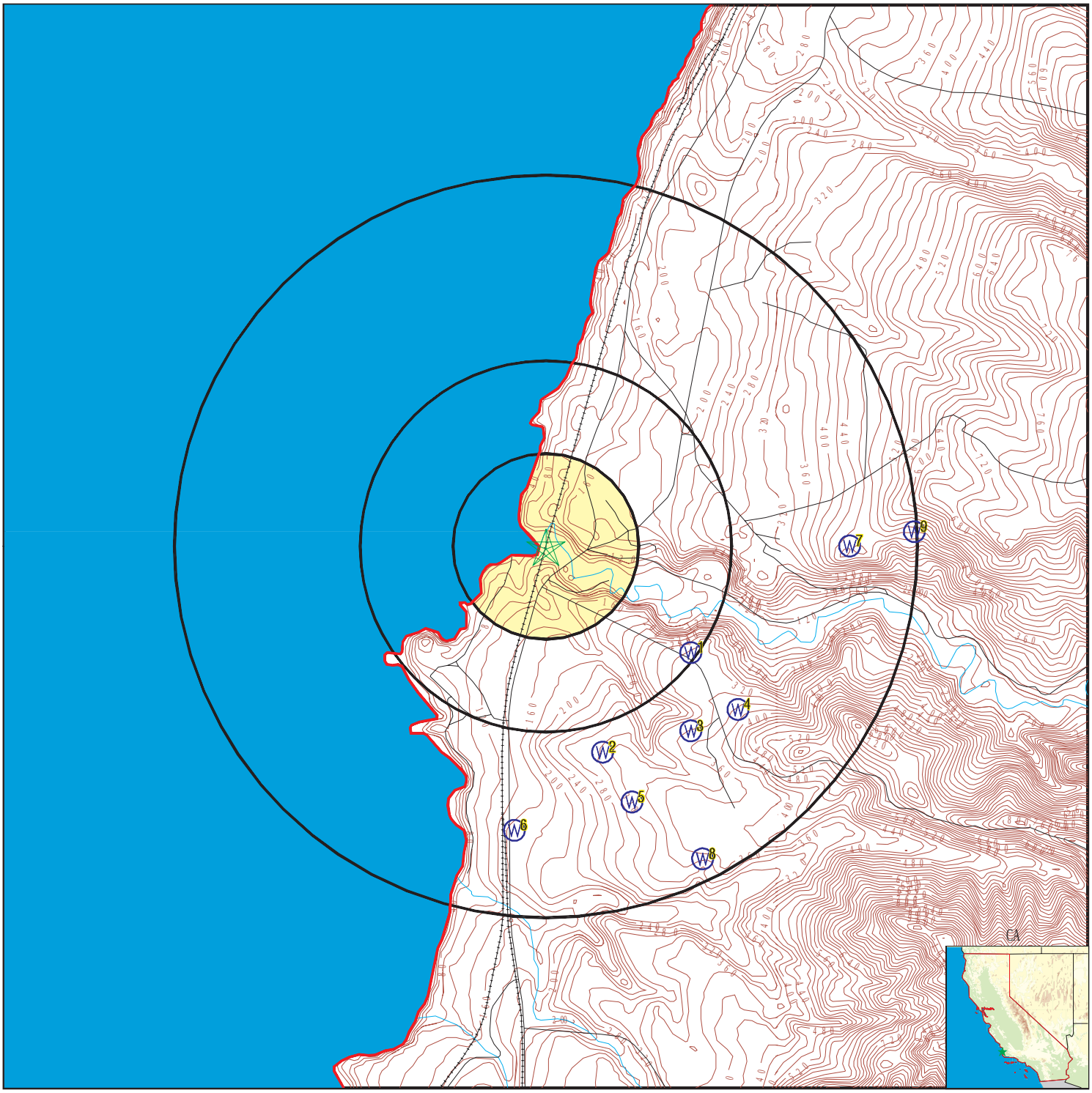
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 7151434.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Honda Bridge	CLIENT:	Althouse & Meade Inc
ADDRESS:	Coast Road/Honda Ridge Road Lompoc CA 93437	CONTACT:	Darcee Guttilla
		INQUIRY #:	7151434.2s
LAT/LONG:	34.608022 / 120.635908	DATE:	October 18, 2022 12:46 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
SE **FED USGS** **USGS40000148084**
1/4 - 1/2 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N036W13Z004S	Type:	Well
Description:	Not Reported	HUC:	18060013
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19640101
Well Depth:	40	Well Depth Units:	ft
Well Hole Depth:	40	Well Hole Depth Units:	ft

2
SSE **FED USGS** **USGS40000147906**
1/2 - 1 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N036W13Z006S	Type:	Well
Description:	Not Reported	HUC:	18060013
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19650101
Well Depth:	40	Well Depth Units:	ft
Well Hole Depth:	40	Well Hole Depth Units:	ft

3
SE **FED USGS** **USGS40000147936**
1/2 - 1 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N036W13Z003S	Type:	Well
Description:	Not Reported	HUC:	18060013
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19640101
Well Depth:	53	Well Depth Units:	ft
Well Hole Depth:	53	Well Hole Depth Units:	ft

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

4
SE
1/2 - 1 Mile
Higher

FED USGS **USGS40000147974**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N036W13Z007S	Type:	Well
Description:	Not Reported	HUC:	18060013
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19650101
Well Depth:	35	Well Depth Units:	ft
Well Hole Depth:	35	Well Hole Depth Units:	ft

5
SSE
1/2 - 1 Mile
Higher

FED USGS **USGS40000147829**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N036W13Z002S	Type:	Well
Description:	Not Reported	HUC:	18060013
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19640101
Well Depth:	50	Well Depth Units:	ft
Well Hole Depth:	50	Well Hole Depth Units:	ft

6
South
1/2 - 1 Mile
Higher

FED USGS **USGS40000147806**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N036W14Z001S	Type:	Well
Description:	Not Reported	HUC:	18060013
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19640101
Well Depth:	52	Well Depth Units:	ft
Well Hole Depth:	52	Well Hole Depth Units:	ft

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

7
East
1/2 - 1 Mile
Higher

FED USGS **USGS40000148233**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N036W13Z005S	Type:	Well
Description:	Not Reported	HUC:	18060013
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19640101
Well Depth:	175	Well Depth Units:	ft
Well Hole Depth:	175	Well Hole Depth Units:	ft

8
SSE
1/2 - 1 Mile
Higher

FED USGS **USGS40000147768**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N036W24Z003S	Type:	Well
Description:	Not Reported	HUC:	18060013
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19640101
Well Depth:	42	Well Depth Units:	ft
Well Hole Depth:	42	Well Hole Depth Units:	ft

9
East
1/2 - 1 Mile
Higher

FED USGS **USGS40000148248**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006N036W13Z001S	Type:	Well
Description:	Not Reported	HUC:	18060013
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19640101
Well Depth:	172	Well Depth Units:	ft
Well Hole Depth:	172	Well Hole Depth Units:	ft

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
93437	10	2

Federal EPA Radon Zone for SANTA BARBARA County: 1

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for SANTA BARBARA COUNTY, CA

Number of sites tested: 82

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.543 pCi/L	93%	7%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	1.620 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX R. ASBESTOS, METALS, AND PCB INSPECTION REPORT (SMS 2022)

REPORT NO. 05032022.0851.ALT
DOC. NO. SBS.RPT.001600.1.0

Althouse and Meade, Inc.

"Asbestos, Metals, & PCB Inspection Report"



Union Pacific Santa Barbara Subdivision

"Milepost 304.88 – Honda Bridge"

Prepared by:
Safety Management Systems, LLC
4200 Easton Dr., Ste. 7
Bakersfield, CA 93309
May 2022

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1.0 Executive Summary

Safety Management Systems (SMS) conducted surveys of the Honda Bridge, located at Milepost 304.88 in Union Pacific's Santa Barbara Subdivision, in Santa Barbara County, California, for asbestos, heavy metals, and Polychlorinated Biphenyls (PCB). The surveys were conducted to identify asbestos containing materials for the purpose of securing NESHAP and Demolition permits if necessary and to identify those materials that may involve special handling during these activities.

The surveys were conducted on May 3, 2022, by SMS Industrial Hygiene Technician, Steve Patton, California Certified Asbestos Consultant (CAC) No. 11-4839, with the final report reviewed by SMS West Coast Regional Manager, Ryan Hester, CIH, CSP, CAC No. 11-4835.

The asbestos bulk samples were submitted to LA Testing Asbestos Laboratory, Inc. in Huntington Beach, CA and were analyzed by Polarized Light Microscopy (PLM) with dispersion staining for identification of bulk material for asbestos down to 1%. The methodology for PLM analysis utilized was EPA 600/R-93/116. Thirty-five (35) asbestos bulk samples were collected for analysis by PLM and were analyzed by the laboratory. Analysis determined that two (2) of the samples submitted contain more than 1% asbestos. There is approximately 15 ft^2 of gasket liner that contains more than 1% asbestos on the equipment that was surveyed.

The lead samples were submitted to EMSL Analytical, Inc. in San Leandro, CA and were analyzed for total lead concentrations by Flame Atomic Absorption with a reporting limit of 0.010%, based on the minimum sample weight. The methodology for analysis of Lead in Paint Chips by Flame AAS is EPA SW-864 3050B*/7000B. Two (2) lead paint chip samples were collected for analysis by FAA and were analyzed by the laboratory. Analysis determined that both samples submitted contain 600 ppm of lead or more. There is 690 ft^2 of paint that contains more than 600 ppm of lead on the equipment that was surveyed.

The heavy metals and PCB samples were submitted to Oilfield Environmental & Compliance, Inc. The samples were analyzed for Total Metals by EPA 6010B, Mercury by EPA 7174A and Polychlorinated Biphenyls (PCB) by EPA 4082. Analysis determined that heavy metals are present in the tar & paint on the bridge structural members, but PCBs are not present.

The following tables list the materials sampled, location, lab analyses result, friability (asbestos only), paint condition (paint only), and quantities for the materials sampled.

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1.1 Asbestos Results

Table 1: Union Pacific Santa Barbara Subdivision MP304.88 Honda Bridge – Asbestos Results

Sample ID	Location of Sample	Material Type	Asbestos Percent	Friable	Estimated Quantity	Sample Photo
503-HB-01	The sample was taken from the gray caulking at the 4" PUC penetration into the concrete on the west side of the south bridge abutment, 5' above ground level.	Gray Caulking	None Detected	N/A	0.5 ft²	
503-HB-02	The sample was taken from the gray caulking at the 4" PUC penetration into the concrete on the west side of the south bridge abutment, 5' above ground level.	Gray Caulking	None Detected	N/A	Calculated with sample 01	
503-HB-03	The sample was taken from the foam insulation at the expansion joint underneath the bridge on the south bridge abutment, 4' above ground level.	Foam	None Detected	N/A	15 ft²	
503-HB-04	The sample was taken from the foam insulation at the expansion joint underneath the bridge on the south bridge abutment, 4' above ground level.	Foam	None Detected	N/A	Calculated with sample 03	
503-HB-05	The sample was taken from the clear caulking at the 4" pipe clamp on the east side of the bridge, 5' north of the south abutment, 4' above ground level.	Clear Caulking	None Detected	N/A	1.25 ft²	

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Sample ID	Location of Sample	Material Type	Asbestos Percent	Friable	Estimated Quantity	Sample Photo
503-HB-06	The sample was taken from the clear caulking at the 4” pipe penetration into the concrete on the east side of the bridge, 5’ north of the south abutment, 4’ above ground level.	Clear Caulking	None Detected	N/A	Calculated with sample 05	
503-HB-07	The sample was taken from the gray coating on the 4” conduit on the east side of bridge, 4’ north of the south abutment, 4’ above ground level. This coating appears to be on the entire conduit line the entire length of the bridge.	Gray Coating	None Detected	N/A	570 ft²	
503-HB-08	The sample was taken from the tar coating and paint on the east side of the bridge, 5’ north of the south abutment, 6’ above ground level. These materials have been applied to all of the metal surfaces on the bridge.	Tar / Paint	None Detected	N/A	~25,000 ft²	
503-HB-09	The sample was taken from the tar coating and paint on the west side of the bridge, 5’ north of the south abutment, 8’ above ground level.	Tar / Paint	None Detected	N/A	Calculated with sample 08	
503-HB-10	The sample was taken from the concrete on the west side of the footing for the south abutment, 4’ above ground level.	Concrete 1	None Detected	N/A	1200 ft³	

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Sample ID	Location of Sample	Material Type	Asbestos Percent	Friable	Estimated Quantity	Sample Photo
503-HB-11	The sample was taken from the concrete on the east side of the footing for the south abutment, 4’ above ground level.	Concrete 1	None Detected	N/A	Calculated with sample 10	
503-HB-12	The sample was taken from the concrete at the west end of the frame for the south abatement, 6” above ground level.	Concrete 2	None Detected	N/A	384 ft³	
503-HB-13	The sample was taken from the concrete at the east end of the frame for the south abatement, 6” above ground level.	Concrete 2	None Detected	N/A	Calculated with sample 12	
503-HB-16	The sample was taken from the concrete at the footing at the northeast leg of the second steel tower from the south end of the bridge, 5’ above ground level.	Concrete 3	None Detected	N/A	7,006 ft³	
503-HB-17	The sample was taken from the concrete at the footing at the northeast leg of the third steel tower from the south end of the bridge, 5’ above ground level.	Concrete 3	None Detected	N/A	Calculated with sample 16	

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Sample ID	Location of Sample	Material Type	Asbestos Percent	Friable	Estimated Quantity	Sample Photo
503-HB-18	The sample was taken from the concrete at the footing at the northeast leg of the fourth steel tower from the south end of the bridge, 5' above ground level.	Concrete 3	None Detected	N/A	Calculated with sample 16	
503-HB-19	The sample was taken from the tar coating and paint at the southeast leg of the fourth steel tower from the south end of the bridge, 7' above ground level.	Tar / Paint	None Detected	N/A	Calculated with sample 08	
503-HB-20	The sample was taken from the tar coating and paint at the northeast leg of the third steel tower from the south end of the bridge, 7' above ground level.	Tar / Paint	None Detected	N/A	Calculated with sample 08	
503-HB-21	The sample was taken from the tar coating and paint at the southeast leg of the third steel tower from the south end of the bridge, 7' above ground level.	Tar / Paint	None Detected	N/A	Calculated with sample 08	
503-HB-23	The sample was taken from the silver paint on the third steel post from the north, on the east side of the north abutment, 4' above ground level. *This paint appears to be on all of the guard rail posts that flank both sides of the bridge.*	Silver Paint	None Detected	N/A	120 ft²	

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Sample ID	Location of Sample	Material Type	Asbestos Percent	Friable	Estimated Quantity	Sample Photo
503-HB-24	**The sample was taken from the gasket liner material in the expansion joint under the north abutment, 7' above ground level.**	**Gasket Liner**	**35% Chrysotile**	**No**	**15 ft²**	
503-HB-25	**The sample was taken from the gasket liner material in the expansion joint under the north abutment, 7' above ground level.**	**Gasket Liner**	**35% Chrysotile**	**No**	**Calculated with sample 24**	
503-HB-26	The sample was taken from the mastic material on the south face of the north abutment, 6' east of the west side, 7' above ground level.	Mastic	None Detected	N/A	6 ft²	
503-HB-27	The sample was taken from the mastic material on the south face of the north abutment, 6' east of the west side, 6' above ground level.	Mastic	None Detected	N/A	Calculated with sample 26	
503-HB-28	The sample was taken from the brick and mortar on the east side of the brick abutment, 1' south of the northeast corner, 2' above ground level.	Brick / Mortar	None Detected	N/A	864 ft³	

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Sample ID	Location of Sample	Material Type	Asbestos Percent	Friable	Estimated Quantity	Sample Photo
503-HB-29	The sample was taken from the brick and mortar on the east side of the north abutment, 1' north of the southeast corner, 5' above ground level.	Brick / Mortar	None Detected	N/A	Calculated with sample 28	
503-HB-30	The sample was taken from the brick and mortar on the west side of the brick abutment, 10' north of the southeast corner, 4' above ground level.	Brick / Mortar	None Detected	N/A	Calculated with sample 28	
503-HB-31	The sample was taken from the gray coating on the 4" conduit n the east side of the north abutment, 4' south of the footing, 7' above ground level.	Gray Coating	None Detected	N/A	Calculated with sample 07	
503-HB-32	The sample was taken from the concrete at the southeast corner of the footing for the north abutment, 5' above ground level.	Concrete 4	None Detected	N/A	456 ft³	
503-HB-33	The sample was taken from the concrete on the south face of the north abutment, 5' west of the east side, 6' above ground level.	Concrete 4	None Detected	N/A	Calculated with sample 32	

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Sample ID	Location of Sample	Material Type	Asbestos Percent	Friable	Estimated Quantity	Sample Photo
503-HB-34	The sample was taken from the concrete at the west end of the retaining wall on the west side of the north abutment, 3’ above ground level.	Concrete 5	None Detected	N/A	100 ft³	
503-HB-35	The sample was taken from the concrete at the east end of the retaining wall on the west side of the north abutment, 3’ above ground level.	Concrete 5	None Detected	N/A	Calculated with sample 34	
503-HB-36	The sample was taken from the tar coating and paint on the east side of the bridge at the north end of the I-beam, on the north abutment, 4’ above ground level.	Tar / Paint	None Detected	N/A	Calculated with sample 08	
503-HB-37	The sample was taken from the tar and paint on the west side of the frame on the north abutment, 7’ above ground level.	Tar / Paint	None Detected	N/A	Calculated with sample 08	
503-HB-40	The sample was taken from the silver/orange paint on the 3” angle iron on the east side of the north abutment, north of the retaining wall, 2’ above ground level.	Silver / Orange Paint	None Detected	N/A	Calculated with sample 23	

Note: The friable or non-friable classification of Asbestos Containing Materials (ACM) presented within this table represents the materials as they existed at the time of the survey. Any site demolition, renovation, or abatement work activities impacting ACM components may require the re-categorization of the ACM materials. It is the client’s responsibility to ensure that NESHAP notifications associated with the site are accurately described and based on the contractor’s work practices.

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1.2 Lead Paint Results

Table 2: Union Pacific Santa Barbara Subdivision MP304.88 Honda Bridge – Lead in Paint Results

Sample ID	Location of Sample	Color	Lead (ppm)	*Condition of paint	Quantity	Sample Photo
503-HB-14	The paint sample was taken from the coating on the 4" conduit on the east side of bridge, 4' north of the south abutment, 4' above ground level. *This coating appears to be on the entire conduit line the entire length of the bridge.*	Gray	2,100	Poor – peeling and eroded	570 ft²	
503-HB-39	The paint sample was taken from the 3" angle iron at the northeast corner of the north abutment, 2' above ground level. *This paint is on the I-beams and angle irons on both sides of the bridge.*	Silver / Orange	290,000	Poor – peeling and eroded	120 ft²	

*Paint condition defined: "Intact" = the entire surface is intact; "Fair" = less than or equal to 10 ft² is deteriorated; "Poor" = more than 10 ft² deteriorated.

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1.3 Heavy Metals & PCB Results

Table 3: Union Pacific Santa Barbara Subdivision MP304.88 Honda Bridge – Metals & PCB Results

Sample ID	Location of Sample	Analyte	Result (mg/kg)	Quantity	Sample Photo
503-HB-15	The sample was taken from the south end of the bridge, on the east side of the bridge frame, 5' north of the concrete abutment, and 6' above ground level.	Antimony	None Detected	~25,000 ft²	
		Arsenic	120(1,2)		
		Barium	160		
		Beryllium	None Detected		
		Cadmium	None Detected		
		Chromium	360(1,2)		
		Cobalt	13		
		Copper	330(1)		
		Lead	**53,000(2)**		
		Mercury	None Detected		
		Molybdenum	17		
		Nickel	42		
		Selenium	None Detected		
		Silver	None Detected		
		Thallium	None Detected		
		Vanadium	30		
		Zinc	300		
		PCB	None Detected		

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Sample ID	Location of Sample	Analyte	Result (mg/kg)	Quantity	Sample Photo
503-HB-22	The sample was taken from the northeast leg of the 2nd steel support tower from the south end of the bridge, at 8' above ground level.	Antimony	13	Calculated w/15	
		Arsenic	37		
		Barium	49		
		Beryllium	None Detected		
		Cadmium	None Detected		
		Chromium	1,500(1,2)		
		Cobalt	7.8		
		Copper	79		
		Lead	**50,000(2)**		
		Mercury	None Detected		
		Molybdenum	None Detected		
		Nickel	14		
		Selenium	None Detected		
		Silver	None Detected		
		Thallium	None Detected		
		Vanadium	None Detected		
		Zinc	480		
		PCB	None Detected		

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Sample ID	Location of Sample	Analyte	Result (mg/kg)	Quantity	Sample Photo
503-HB-38	The sample was taken from the north end of the bridge, on the west side of the frame, at the north abutment, and 7' above ground level.	Antimony	None Detected	Calculated w/15	
		Arsenic	140(1,2)		
		Barium	62		
		Beryllium	None Detected		
		Cadmium	None Detected		
		Chromium	240(1,2)		
		Cobalt	13		
		Copper	300(1)		
		Lead	**53,000(2)**		
		Mercury	None Detected		
		Molybdenum	4.4		
		Nickel	29		
		Selenium	None Detected		
		Silver	None Detected		
		Thallium	None Detected		
		Vanadium	15		
		Zinc	210		
		PCB	None Detected		

Bold text indicates result exceeds TTLC Regulatory Limit
(1) Material should be analyzed by STLC
(2) Material should be analyzed by TCLP

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2.0 Scope of Work

Safety Management Systems, LLC was retained by Althouse & Meade to survey the Union Pacific Honda Bridge for possible asbestos and lead containing construction materials, and to develop a report based on the laboratory results.

2.1 Service Description

The following Professional Services were provided:

a) Conduct asbestos and lead paint surveys of the specified equipment as directed by the client in accordance with the procedures, standards, and qualifications of individuals performing asbestos surveys, as defined in federal, state, and local ordinance.
b) Using industry standard guidelines, collect bulk samples of each suspect asbestos-containing material and suspect lead containing paint.
c) Collect samples of the bridge coatings for heavy metals and PCBs.
d) Submit all samples to an independent laboratory(s) for analysis.
e) Prepare a written report that indicates the following:
    1) Sample numbers, material locations, material types, analyte content, friability, and estimated quantity for each material sampled.
    2) Provide a laboratory report from the designated laboratory for all asbestos and lead paint samples analyzed.

3.0 Procedures and Access

3.1 Access

The surveys were performed on May 3, 2020 by Safety Management Systems, LLC.

3.2 Survey Procedures

The surveys were conducted by visually assessing each component for the presence of potential asbestos containing materials, lead containing paint, metals, or PCBs, and physically obtaining representative samples of each suspect material.

3.3 Laboratory Information

The asbestos samples were analyzed by LA Testing Laboratories of Huntington Beach, California:

- California – Bulk Asbestos, Lead, Asbestos in Drinking Water, and Microbiology Certification #1406
- AIHA Laboratory Accreditation Program Certification #101650
- NIST – NVLAP Asbestos Fiber Analysis Certification #101384-0

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The lead samples were analyzed by EMSL Analytical, Inc. of San Leandro, California:

- California – Bulk Asbestos, Lead, Asbestos in Drinking Water, and Microbiology Certification #1620
- AIHA Laboratory Accreditation Program Certification #101748
- NIST – NVLAP Asbestos Fiber Analysis Certification #101048-3

The heavy metals and PCB samples were analyzed by Oilfield Environmental and Compliance (OEC) of Santa Maria, California.

- California Environmental Laboratory Accreditation Certificate No. 2438

4.0 Component Descriptions

The Honda Bridge is an old steel structure that spans across a large canyon within Union Pacific's Santa Barbara Subdivision, in Santa Barbara County. The bridge is located at milepost 304.88 within the subdivision, and the area is located within the grounds of the Vandenberg Space Force Base. The bridge has an overall length of 542 feet, and the top of the bridge is set at 117 feet above sea level. The SMS technician identified multiple suspect asbestos containing materials and lead-based coatings on the bridge and its associated equipment. Some of these materials were also sampled for hazardous waste and Polychlorinated biphenyls (PCB).

The steel members are coated with a tar coating, which is intact throughout most of the surface area of the bridge. Underneath the tar coating, the members appear to have been painted black with an orange primer underneath. The tar and paint combination was sampled together due to the fact that the technician was not able to separate the materials.

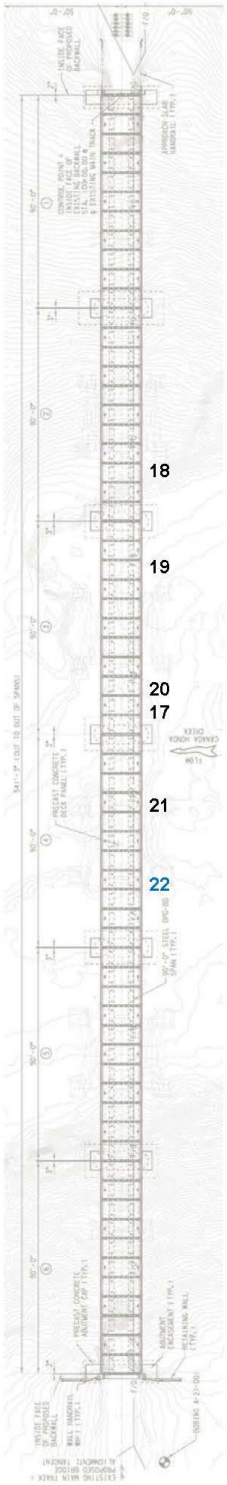
The SMS technician identified several different types of caulking materials on the south abutment. These materials include a gray caulking on the west side of the abutment, a foam insulation inside an expansion joint toward the center of the abutment, and a clear caulking on the east side of the abutment. Underneath the bridge there is a 4" conduit line that appears to extend across the entire length. This conduit line is covered with a gray coating material. In addition to these materials the technician also sampled two different types of concrete. These include the concrete on the abutment itself, and the concrete on the retaining walls on both sides of the abutment.

The SMS technician identified a different set of materials on the north abutment. There is a fibrous liner inside an expansion joint toward the center of the abutment, as well as a mastic patch on the south wall of the abutment. A section of the abutment is made of red brick and mortar. Like the south abutment, the technician sampled the concrete on the abutment itself and the concrete on the retaining walls on both sides of the abutment.

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The technician took additional samples of the tar and paint at the base of the towers, as well as the concrete on the tower foundations.

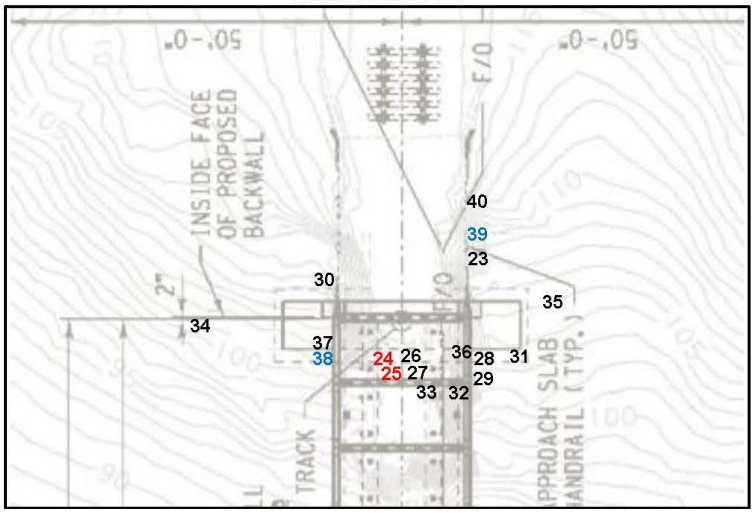
5.0 Sample Location Map



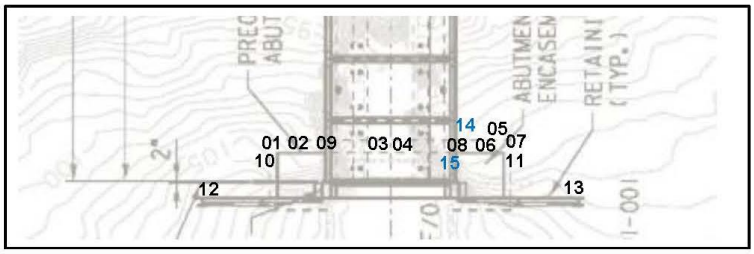
Althouse and Meade
Union Pacific – Santa Barbara Subdivision
Milepost 304.88 – Honda Bridge
Sample Location Map

N

North Abutment



South Abutment



LEGEND
= Sample Number & Location
= Sample Contains Asbestos
= Sample Contains ≥600 ppm Lead

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6.0 Reference Photos



Reference photo of the south abutment.



Reference photo of the south abutment.



Reference photo of the north abutment.



Reference photo of the north abutment.



Reference photo of the base of the bridge.



Reference photo of the bridge support towers and the angle irons at the top.

7.0 Assumptions

The following assumption(s) regarding material conditions and/or locations has been made:

- Based on the nature of this survey and the possibility of additional materials being unearthed or discovered, Safety Management Systems has assumed that any unearthed or discovered pipe insulation, asphaltic pipe wrap, or fibrous, non-metallic, flange gaskets contain asbestos greater than 1% in content until tested and proven otherwise.

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8.0 Conclusions

Based on the evaluation of the laboratory results and information gathered during the visual assessment, materials containing asbestos have been identified in the following locations:

- **The gasket liner in the expansion joint on the south face of the north abutment has been determined to contain more than 1% asbestos. (15 ft^2)**

Paint containing 600 ppm of lead or more has been identified in the following locations:

- **The gray coating on the 4" conduit that runs across the base of the bridge. (570 ft^2)**
- **The silver/orange paint on the angle irons on the top of the bridge. (120 ft^2)**
- **The tar and paint on the structural steel of the bridge. (~25,000 ft^2)**

The tar and paint coating on the bridge structural steel has been determined to contain multiple heavy metals.

9.0 Recommendations

Asbestos Recommendations:

Performing demolition or renovation activities where asbestos is present could release asbestos fibers into the environment and expose contractors and workers to a health risk. Should work activity require disturbance of these materials, then the affected materials should be removed by qualified individuals using work practices designated by Title 8 CCR 1529.

Any contractor disturbing materials that contain any amount of asbestos is subject to California Code of Regulations Section 1529, including at a minimum: exposure monitoring, use of HEPA equipped vacuum cleaners, wet methods, and prompt clean up, and proper labeling of waste containers. Additionally, depending on employee exposure levels, asbestos concentrations, and work classifications, required work practices may include: regulated areas, additional engineering controls, respiratory protection, protective clothing, supervision by a competent person, hazard communications, training, and notification. Additionally, any contractor that disturbs more than 100 square feet of ACCM shall be registered with the Division of Occupational Safety and Health. Consult with the proper state, county, and local departments and secure all appropriate permits before disturbing any asbestos.

According to the EPA's National Emissions Standard for Hazardous Air Pollutants (NESHAP), all Regulated Asbestos Containing Material (RACM) shall be removed prior to any demolition or renovation activity that would break up, dislodge, or similarly disturb the material. Additionally,

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proper notifications shall be made to the local air quality management or air pollution control district prior to the start of work.

Should materials similar to those identified in this report, or other forms of suspect asbestos-containing materials, be discovered during work activity, construction personnel/contractors should be instructed to immediately cease work activities that may initiate a fiber release episode and notify the appropriate management personnel.

Lead Recommendations:

The provisions set forth in CCR Title 8, Cal/Osha Construction Safety Orders Lead Section 1532.1, should be followed during construction, alteration, or repair, of equipment or components coated with paint containing any amount of lead. Section (d)(4) of the regulation stipulates that objective data which demonstrate that lead surface coatings are under 600 ppm by weight can be used in lieu of initial exposure monitoring only if work practices do not include the use of the "trigger tasks" highlighted in Section (d)(2). Performing tasks such as manual scraping or demolition, cutting and torch burning may require the use of qualified, trained personnel. Additional safety precautions may include medical surveillance, respiratory protection, and exposure assessments based on work practices.

Heavy Metals Recommendations:

An exposure assessment should be performed on employees disturbing the coating materials on the structural steel of the bridge. Activities of concern would include manual demolition, scraping, torch cutting, welding, blasting, or any other activity that may result in airborne dust, fumes, or vapors from the tar or paint. Additionally, further waste characterization analysis is necessary for any accumulated coatings for disposal, including STLC analysis for Arsenic, Chromium, and Copper, and TCLP analysis for Arsenic, Chromium, and Lead.

General Recommendations:

Notification to employees and contractors working within the area must be made in accordance with the California Health and Safety Code, Section 25915 et. seq. and Proposition 65.

10.0 Work Plans

No work plans have been developed under the scope of work covered by this document.

Safety Management Systems, LLC
4200 Easton Dr., Ste. 7, Bakersfield, CA 93309
Phone: 661-241-9343

11.0 Limitations

Safety Management Systems warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The field and laboratory results reported herein are considered sufficient in detail and scope to determine the presence, condition and hazard potential of accessible and/or exposed suspect asbestos-containing materials and lead based paint limited to the subject components in the areas directed by the client at the time of inspection. Test results are valid only for the materials tested.

There is a distinct possibility that conditions may exist which could not be identified within the scope of study or which were not apparent during the site visit. This inspection covered only those areas that were included in the scope and/or physically accessible to the inspector at the time of the survey, using destructive sampling techniques. Suspect materials not identified or sampled during the survey may be hazardous and should be treated as asbestos containing, until sampled and analyzed. The study is also limited to the information available from the client at the time it was conducted. No other warranties are implied or expressed.

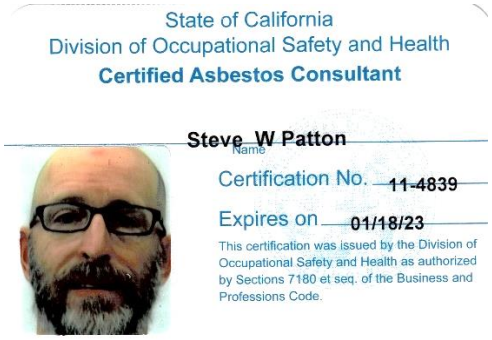
Safety Management Systems, LLC
4200 Easton Dr., Ste. 7, Bakersfield, CA 93309
Phone: 661-241-9343

12.0 Signatures and Certifications

Sampling conducted and report written by:



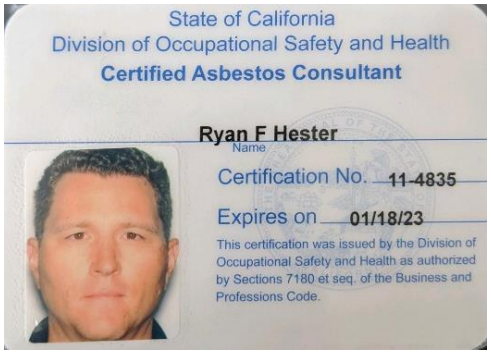
Steve Patton
CSP No. 38553
CAC No. 11-4839
CDPH No. 00002338
Industrial Hygiene Technician
Safety Management Systems, LLC



Report reviewed by:



Ryan Hester, MS, CIH, CSP
CAC No. 11-4835
CDPH Lead Inspector No. 00001949
CDPH Lead Project Monitor No. 00001948
West Coast Regional Manager
Safety Management Systems, LLC







Safety Management Systems, LLC
4200 Easton Dr., Ste. 7, Bakersfield, CA 93309
Phone: 661-241-9343

LA Testing
5431 Industrial Drive Huntington Beach, CA 92649
Tel/Fax: (714) 828-4999 / (714) 828-4944
http://www.LATesting.com / gardengrovelab@latesting.com

LA Testing Order:	332210415
Customer ID:	SMGS42
Customer PO:	
Project ID:	

Attention:	Steve Patton	**Phone:**	(805) 587-8983
	Safety Management Systems	**Fax:**	
	4200 Easton Dr. #7	**Received Date:**	05/05/2022 10:40 AM
	Bakersfield, CA 93309	**Analysis Date:**	05/10/2022
		Collected Date:	05/03/2022

Project: Althouse & Meade Union Pacific SB Subdivision MP 304.88 Honda Bridge

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	Description	Appearance	% Fibrous	% Non-Fibrous	% Type
503-HB-01 *332210415-0001*	Gray caulking	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-02 *332210415-0002*	Gray caulking	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-03 *332210415-0003*	Foam	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-04 *332210415-0004*	Foam	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-05 *332210415-0005*	Clear caulking	Clear Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-06 *332210415-0006*	Clear caulking	Tan/Clear Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-07 *332210415-0007*	Gray coating	Gray/Rust Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected
503-HB-08-Paint *332210415-0008*	Tar/paint	Orange Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-08-Tar *332210415-0008A*	Tar/paint	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-09-Paint *332210415-0009*	Tar/paint	Orange Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-09-Tar *332210415-0009A*	Tar/paint	Brown/Black/Rust Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected
503-HB-10 *332210415-0010*	Concrete 1	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-11 *332210415-0011*	Concrete 1	Gray/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-12 *332210415-0012*	Concrete 2	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-13 *332210415-0013*	Concrete 2	Gray/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-16 *332210415-0014*	Concrete 3	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 05/10/2022 19:13:08

ASB_PLM_0008_0001 - 1.78 Printed: 5/10/2022 4:13 PM

Page 1 of 3

LA Testing
5431 Industrial Drive Huntington Beach, CA 92649
Tel/Fax: (714) 828-4999 / (714) 828-4944
http://www.LATesting.com / gardengrovelab@latesting.com

LA Testing Order: 332210415
Customer ID: SMGS42
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	Description	Appearance	% Fibrous	% Non-Fibrous	% Type
503-HB-17 *332210415-0015*	Concrete 3	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-18 *332210415-0016*	Concrete 3	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-19-Paint *332210415-0017*	Tar/paint	Orange Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-19-Tar *332210415-0017A*	Tar/paint	Brown/Black Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected
503-HB-20-Paint *332210415-0018*	Tar/paint	Orange Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-20-Tar *332210415-0018A*	Tar/paint	Brown/Black Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected
503-HB-21-Paint *332210415-0019*	Tar/paint	Orange Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-21-Tar *332210415-0019A*	Tar/paint	Brown/Black Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected
503-HB-23 *332210415-0020* *Orange paint not present.*	Silver/orange paint	Silver/Rust Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected
503-HB-24-Liner *332210415-0021*	Gasket liner	Tan/Black Fibrous Heterogeneous		65% Non-fibrous (Other)	35% Chrysotile
503-HB-24-Concrete *332210415-0021A*	Gasket liner	Brown/Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-25 *332210415-0022*	Gasket liner	Brown/Black Fibrous Heterogeneous		75% Non-fibrous (Other)	25% Chrysotile
503-HB-26-Concrete *332210415-0023* *Mastic not present*	Mastic	Brown/Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-27-Concrete *332210415-0024* *Mastic not present.*	Mastic	Brown/Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-28-Brick *332210415-0025*	Brick/mortar	Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-28-Mortar *332210415-0025A*	Brick/mortar	Brown/Gray Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected
503-HB-29-Brick *332210415-0026*	Brick/mortar	Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-29-Mortar *332210415-0026A*	Brick/mortar	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 05/10/2022 19:13:08

LA Testing
5431 Industrial Drive Huntington Beach, CA 92649
Tel/Fax: (714) 828-4999 / (714) 828-4944
http://www.LATesting.com / gardengrovelab@latesting.com

LA Testing Order: 332210415
Customer ID: SMGS42
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
503-HB-30-Brick *332210415-0027*	Brick/mortar	Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-30-Mortar *332210415-0027A*	Brick/mortar	Brown/Gray Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected
503-HB-31 *332210415-0028*	Gray coating	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-32 *332210415-0029*	Concrete 4	Gray/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-33 *332210415-0030*	Concrete 4	Gray/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-34 *332210415-0031*	Concrete 5	Gray/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-35 *332210415-0032*	Concrete 5	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-36-Paint *332210415-0033*	Tar/paint	Orange Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-36-Tar *332210415-0033A*	Tar/paint	Brown/Black Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected
503-HB-37-Paint *332210415-0034*	Tar/paint	Orange Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-37-Tar *332210415-0034A*	Tar/paint	Brown/Black Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected
503-HB-40-Paint 1 *332210415-0035*	Silver/orange paint	Silver Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
503-HB-40-Paint 2 *332210415-0035A*	Silver/orange paint	Orange Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s)
Alexis Rodriguez (11)
Jeffrey wang (9)
Sotheary Son (11)
Tony Salgado (16)

Michael Chapman, Laboratory Manager
or Other Approved Signatory

LA Testing maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by LA Testing. LA Testing bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method") but augmented with procedures outlined in the 1993 ("final") version of the method. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore LA Testing recommends gravimetric reduction prior to analysis. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Estimation of uncertainty is available on request.

Samples analyzed by LA Testing Huntington Beach, CA NVLAP Lab Code 101384-0, CA ELAP 1406

Initial report from: 05/10/2022 19:13:08

OrderID: 332210415

Asbestos Chain of Custody

LA Testing Order Number (*Lab Use Only*): #332210415

LA TESTING
5431 INDUSTRIAL DRIVE
HUNTINGTON BEACH, CA
92649
PHONE:714-828-4999
FAX: 714-828-4944

Company : Safety Management Systems		**EMSL Customer ID: SMGS42**	
Street: 4200 Easton Dr. Ste. 7		**City: Bakersfield**	**State/Province: CA**
Zip/Postal Code: 93309	**Country: USA**	**Telephone #: (805) 587-8983**	**Fax #:**
Report To (Name): Steve Patton		**Please Provide Results:** ☐ Fax ☒ Email	
Email Address: spatton.consulting@gmail.com		**Purchase Order:**	
Project Name/Number: Althouse & Meade Union Pacific SB Subdivision MP 304.88 Honda Bridge			
U.S. State Samples Taken: CA	**EMSL Project ID** (*Internal Use Only*):		

LA Testing-Bill to: ☒ Same ☐ Different - If Bill to is Different note instructions in Comments**
Third Party Billing requires written authorization from third party

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour | ☐ 6 Hour | ☐ 24 Hour | ☐ 48 Hour | ☐ 72 Hour | ■ 96 Hour | ☐ 1 Week | ☐ 2 Week

*For TEM Air 3 hours through 6 hours, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with LA Testing's Terms and Conditions located in the Analytical Price Guide.

PCM - Air ☐ Check if samples are from NY
- ☐ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ■ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198.6 NOB (non-friable-NY)
- ☐ NYS 198.8 SOF-V
- ☐ NIOSH 9002 (<1%)

TEM – Air ☐ **4-4.5hr TAT (AHERA only)**
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- ☐ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ EPA Protocol (Semi-Quantitative)
- ☐ EPA Protocol (Quantitative)

Other:
- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group** | **Filter Pore Size (Air Samples):** ☒ **0.8µm** ☐ **0.45µm**

Samplers Name: Steve Patton | **Samplers Signature:**

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
503-HB-01	Gray Caulking	Bulk.	5/3/22
503-HB-02	Gray Caulking		
503-HB-03	Foam		
503-HB-04	Foam		
503-HB-05	Clear Caulking		
503-HB-06	Clear Caulking		

Client Sample # (s): - **Total # of Samples:** 35

Relinquished (Client): **Date:** 5/4/22 **Time:**

Received (Lab): MT(EFX) **Date:** 5/5/22 **Time:** 10:40

Comments/Special Instructions:

Page 1 of 3 pages

Controlled Document – COC-04 Asbestos – R3.1 – 3/30/2017

Page 1 Of 3

OrderID: 332210415

Asbestos Chain of Custody

LA Testing Order Number (Lab Use Only): #332210415

LA TESTING
5431 INDUSTRIAL DRIVE
HUNTINGTON BEACH, CA 92649
PHONE:714-828-4999
FAX: 714-828-4944

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
503-HB-07	Gray Coating	Bulk.	5/3/22
503-HB-08	Tar/Paint		
503-HB-09	Tar/Paint		
503-HB-10	Concrete 1		
503-HB-11	Concrete 1		
503-HB-12	Concrete 2		
503-HB-13	Concrete 2		
503-HB-16	Concrete 3		
503-HB-17	Concrete 3		
503-HB-18	Concrete 3		
503-HB-19	Tar/Paint		
503-HB-20	Tar/Paint		
503-HB-21	Tar/Paint		
503-HB-23	Silver/Orange Paint		
503-HB-24	Gasket Liner		
503-HB-25	Gasket Liner		

*Comments/Special Instructions:

Page 2 of 3 pages

Controlled Document – COC-04 Asbestos – R3.1 – 3/30/2017

Page 2 Of 3

OrderID: 332210415

LA TESTING

Asbestos Chain of Custody

LA Testing Order Number (*Lab Use Only*):

#332210415

LA TESTING
5431 INDUSTRIAL DRIVE
HUNTINGTON BEACH, CA 92649
PHONE:714-828-4999
FAX: 714-828-4944

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
503-HB-26	Mastic	Bulk.	5/3/22
503-HB-27	Mastic	↓	↓
503-HB-28	Brick/Mortar		
503-HB-29	Brick/Mortar		
503-HB-30	Brick/Mortar		
503-HB-31	Gray Coating		
503-HB-32	Concrete 4		
503-HB-33	Concrete 4		
503-HB-34	Concrete 5		
503-HB-35	Concrete 5		
503-HB-36	Tar/ Paint		
503-HB-37	Tar/ Paint		
503-HB-40	Silver/Orange Paint	↓	↓

***Comments/Special Instructions:**

Page 3 of 3 pages

Controlled Document – COC-04 Asbestos – R3.1 – 3/30/2017

Page 3 Of 3

Safety Management Systems, LLC
4200 Easton Dr., Ste. 7, Bakersfield, CA 93309
Phone: 661-241-9343

Appendix B – Lead Laboratory Results

EMSL Analytical, Inc
464 McCormick Street, San Leandro, CA 94577
Phone/Fax: (510) 895-3675 / (510) 895-3680
http://www.EMSL.com sanleandrolab@emsl.com

EMSL Order:	092209384
CustomerID:	SMGS42
CustomerPO:	
ProjectID:	

Attn: **Steve Patton**
Safety Management Systems
4200 Easton Dr. #7
Bakersfield, CA 93309

Phone: (337) 521-3400
Fax:
Received: 5/6/2022 09:00 AM
Collected: 5/3/2022

Project: **ALTHOUSE & MEADE UNION PACIFIC SB SUBDIVISION MP304.88 HONDA BRIDGE**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client Sample Description	Lab ID	Collected	Analyzed	Weight	Lead Concentration
503-14B-14	092209384-0001	5/3/2022	5/7/2022	0.2531 g	2100 ppm
	Site: GRAY				
503-14B-39	092209384-0002	5/3/2022	5/7/2022	0.2526 g	290000 ppm
	Site: SILVER/ORANGE				

Julian Neagu, Lead Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted.
* Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008% wt based on the minimum sample weight per our SOP. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.
Samples analyzed by EMSL Analytical, Inc San Leandro, CA AIHA-LAP, LLC-ELLAP Accredited #101748

Initial report from 05/07/2022 13:19:54

Test Report ChmSnglePrm/nQC-7.32.3 Printed: 5/7/2022 1:19:54 PM

Page 1 of 1

OrderID: 092209384

Lead (Pb) Chain of Custody

EMSL Order ID *(Lab Use Only)*: 092209384

LA TESTING
5431 INDUSTRIAL DRIVE
Huntington Beach, CA 92649
PHONE: (714) 828-4999
FAX: (714) 828-4944

Company : Safety Management Systems (SMGS42)		**EMSL-Bill to:** ☒ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*	
Street: 4200 Easton Dr. Ste. 7			
City: Bakersfield	**State/Province: CA**	**Zip/Postal Code: 91384**	**Country: USA**
Report To (Name): Steve Patton		**Telephone #: (805) 587-8983**	
Email Address: spatton.consulting@gmail.com		**Fax #:**	**Purchase Order:**
Project Name/Number: Althouse & Meade Union Pacific SB Subdivision MP304.88 Honda Bridge			
U.S. State Samples Taken: CA		**Please Provide Results:** ☐ Fax ☒ Email	

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour | ☐ 6 Hour | ☐ 24 Hour | ☐ 48 Hour | ☐ 72 Hour | ■ 96 Hour | ☐ 1 Week | ☐ 2 Week

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide*

Matrix	Method	Instrument	Reporting Limit	Check
Chips ☐ % by wt. ☐ mg/cm² ■ ppm (mg/kg)	SW846-7000B/7420	Flame Atomic Absorption	0.01%	■
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	☐
	NIOSH 7303	ICP-OES	0.5 µg/filter	☐
Wipe* ASTM ☐ non ASTM ☐ *if no box is checked, non-ASTM Wipe is assumed	SW846-7000B/7420	Flame Atomic Absorption	10 µg/wipe	☐
	SW846-6010B or C	ICP-OES	1.0 µg/wipe	☐
TCLP	SW846-1311/7000B/7420	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW846-1311/SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)	☐
TTLC	22 CCR App. II, 7000B/7420	Flame Atomic Absorption	40 mg/kg (ppm)	☐
	22 CCR App. II, SW846-6010B or C	ICP-OES	2 mg/kg (ppm)	☐
STLC	22 CCR App. II, 7000B/7420	Flame Atomic Absorption	40 mg/kg (ppm)	☐
	22 CCR App. II, SW846-6010B or C	ICP-OES	2 mg/kg (ppm)	☐
Soil	SW846-7000B/7420	Flame Atomic Absorption	40 mg/kg (ppm)	☐
	SW846-6010B or C	ICP-OES	2 mg/kg (ppm)	☐
Wastewater Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	SM3111B/SW846-7000B/7420	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	EPA 200.7	ICP-OES	0.020 mg/L (ppm)	☐
Drinking Water Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	EPA 200.5	ICP-OES	0.003 mg/L (ppm)	☐
	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	☐
TSP/SPM Filter	40 CFR Part 50	ICP-OES	10 µg/filter	☐
Other:				☐

Name of Sampler: Steve Patton **Signature of Sampler:**

Sample #	Location	Volume/Area	Date/Time Sampled
503-HB-14	Gray	Chips.	5/3/22
503-HB-39	Silver/Orange	1	1

Client Sample #s -

Total # of Samples: 2

Relinquished (Client):		**Date:**	5/4/22	**Time:**	
Received (Lab):	FA	**Date:**	5-5-22	**Time:**	9am EF

Comments: ①

Controlled Document — COC-24 Lead (Pb) – R7– 6/28/2017

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7963 9036 4343

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Safety Management Systems, LLC
4200 Easton Dr., Ste. 7, Bakersfield, CA 93309
Phone: 661-241-9343

Analytical Report

Oilfield Environmental & Compliance, Inc.

Steve Patton
Safety Management Systems
4200 Easton Dr., Suite 7
Bakersfield, CA 93309

OEC Work Order: **2202813**
Report Date: **May 16, 2022 16:12**

Project: **Safety Management Systems**
Number: Union Pacific SB Subdivision MP304.808

Enclosed is an analytical report for the above referenced project. The samples included in this report were received on May 04, 2022 16:00 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Manual, applicable standard operating procedures, and other related documentation. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Authorized for release by:

Meredith Sprister, Business Director
mspristcr@occusa.com

This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO/ILAC-IAF Communiqué dated April 2017)

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TNI 2016 & ISO/IEC 17025:2017
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Safety Management Systems	Project: Safety Management Systems	WO & Reported:
4200 Easton Dr., Suite 7	Project Number: Union Pacific SB Subdivision MP304.808	2202813
Bakersfield CA, 93309	Project Manager: Steve Patton	05/16/2022 16:12

Revision History

Previous Report	Reason for Revision
2202813 05/16/2022 11:00	Complete report.

Sample Summary

Sample ID	Laboratory ID	Client Matrix	Lab Matrix	Date Sampled	Date Received
503-HB-15	2202813-01	Solid	Solid	05/03/2022 11:45	05/04/2022 16:00
503-HB-22	2202813-02	Solid	Solid	05/03/2022 12:30	05/04/2022 16:00
503-HB-38	2202813-03	Solid	Solid	05/03/2022 14:15	05/04/2022 16:00

Sample Batch Preparation Summary

Analysis	Batch ID	Preparation Date/Time
Polychlorinated Biphenyls by GC/ECD		
8082 PCB	B2E0203	05/06/2022 15:20
Total Metals by CVAA		
Mercury Total EPA 7471A	B2E0247	05/09/2022 15:02
Total Metals by ICP		
6010B Total	B2E0230	05/09/2022 08:56

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Safety Management Systems	Project: Safety Management Systems	WO & Reported:
4200 Easton Dr., Suite 7	Project Number: Union Pacific SB Subdivision MP304.808	2202813
Bakersfield CA, 93309	Project Manager: Steve Patton	05/16/2022 16:12

Analytical Report for Samples

Sample ID : **503-HB-15** Sampled : 05/03/22 11:45
Matrix : Solid Sampled by : Steve Patton
Lab ID : 2202813-01 Field Data : NA

Analyte	Result	RL	Units	Dilution	Batch	Analyzed	Method	Notes
Total Metals by CVAA								
Mercury	ND	0.094	mg/kg	1	B2E0247	05/10/22 18:17	EPA 7471A	
Total Metals by ICP								
Antimony	ND	12	mg/kg	5	B2E0230	05/12/22 16:14	EPA 6010B	R-06
Arsenic	**120**	9.9	"	"	"	"	"	N-02, N-03
Barium	**160**	4.9	"	"	"	"	"	
Beryllium	ND	2.5	"	"	"	"	"	R-06
Cadmium	ND	1.2	"	"	"	"	"	R-06
Chromium	**360**	2.5	"	"	"	"	"	N-02, N-03
Cobalt	**13**	2.5	"	"	"	"	"	
Copper	**330**	4.9	"	"	"	"	"	N-02
Lead	**53,000**	120	"	250	"	05/12/22 18:56	"	B-01n, N-01, N-03
Molybdenum	**17**	2.5	"	5	"	05/12/22 16:14	"	
Nickel	**42**	2.5	"	"	"	"	"	
Selenium	ND	9.9	"	"	"	"	"	R-06
Silver	ND	2.5	"	"	"	"	"	R-06
Thallium	ND	4.9	"	"	"	"	"	R-06
Vanadium	**30**	9.9	"	"	"	"	"	
Zinc	**300**	9.9	"	"	"	"	"	
Polychlorinated Biphenyls by GC/ECD								C-01, C-06, R-01
PCB-1016	ND	0.79	mg/kg	1	B2E0203	05/16/22 12:37	EPA 8082	
PCB-1221	ND	0.79	"	"	"	"	"	
PCB-1232	ND	0.79	"	"	"	"	"	
PCB-1242	ND	0.79	"	"	"	"	"	
PCB-1248	ND	0.79	"	"	"	"	"	
PCB-1254	ND	0.79	"	"	"	"	"	
PCB-1260	ND	0.79	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*83 %*	*(35 - 158)*		"	"	"	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*99 %*	*(37 - 121)*		"	"	"	

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Safety Management Systems	Project: Safety Management Systems	WO & Reported:
4200 Easton Dr., Suite 7	Project Number: Union Pacific SB Subdivision MP304.808	2202813
Bakersfield CA, 93309	Project Manager: Steve Patton	05/16/2022 16:12

Analytical Report for Samples

Sample ID : **503-HB-22** — Sampled : 05/03/22 12:30
Matrix : Solid — Sampled by : Steve Patton
Lab ID : 2202813-02 — Field Data : NA

Analyte	Result	RL	Units	Dilution	Batch	Analyzed	Method	Notes
Total Metals by CVAA								
Mercury	ND	0.085	mg/kg	1	B2E0247	05/10/22 18:21	EPA 7471A	
Total Metals by ICP								
Antimony	**13**	12	mg/kg	5	B2E0230	05/12/22 16:24	EPA 6010B	
Arsenic	**37**	9.4	"	"	"	"	"	
Barium	**49**	4.7	"	"	"	"	"	
Beryllium	ND	2.3	"	"	"	"	"	**R-06**
Cadmium	ND	1.2	"	"	"	"	"	**R-06**
Chromium	**1500**	2.3	"	"	"	"	"	**N-02, N-03**
Cobalt	**7.8**	2.3	"	"	"	"	"	
Copper	**79**	4.7	"	"	"	"	"	
Lead	**50,000**	120	"	250	"	05/12/22 18:59	"	**B-01n, N-01, N-03**
Molybdenum	ND	2.3	"	5	"	05/12/22 16:24	"	**R-06**
Nickel	**14**	2.3	"	"	"	"	"	
Selenium	ND	9.4	"	"	"	"	"	**R-06**
Silver	ND	2.3	"	"	"	"	"	**R-06**
Thallium	ND	4.7	"	"	"	"	"	**R-06**
Vanadium	ND	9.4	"	"	"	"	"	**R-06**
Zinc	**480**	9.4	"	"	"	"	"	
Polychlorinated Biphenyls by GC/ECD								**C-01, C-06, R-01**
PCB-1016	ND	0.79	mg/kg	1	B2E0203	05/16/22 12:50	EPA 8082	
PCB-1221	ND	0.79	"	"	"	"	"	
PCB-1232	ND	0.79	"	"	"	"	"	
PCB-1242	ND	0.79	"	"	"	"	"	
PCB-1248	ND	0.79	"	"	"	"	"	
PCB-1254	ND	0.79	"	"	"	"	"	
PCB-1260	ND	0.79	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*91 %*	*(35 - 158)*		"	"	"	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*82 %*	*(37 - 121)*		"	"	"	

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Safety Management Systems	Project: Safety Management Systems	WO & Reported:
4200 Easton Dr., Suite 7	Project Number: Union Pacific SB Subdivision MP304.808	2202813
Bakersfield CA, 93309	Project Manager: Steve Patton	05/16/2022 16:12

Analytical Report for Samples

Sample ID : **503-HB-38** Sampled : 05/03/22 14:15
Matrix : Solid Sampled by : Steve Patton
Lab ID : 2202813-03 Field Data : NA

Analyte	Result	RL	Units	Dilution	Batch	Analyzed	Method	Notes
Total Metals by CVAA								
Mercury	ND	0.085	mg/kg	1	B2E0247	05/10/22 18:23	EPA 7471A	
Total Metals by ICP								
Antimony	ND	12	mg/kg	5	B2E0230	05/12/22 16:27	EPA 6010B	R-06
Arsenic	**140**	9.6	"	"	"	"	"	N-02, N-03
Barium	**62**	4.8	"	"	"	"	"	
Beryllium	ND	2.4	"	"	"	"	"	R-06
Cadmium	ND	1.2	"	"	"	"	"	R-06
Chromium	**240**	2.4	"	"	"	"	"	N-02, N-03
Cobalt	**13**	2.4	"	"	"	"	"	
Copper	**300**	4.8	"	"	"	"	"	N-02
Lead	**53,000**	120	"	250	"	05/12/22 19:02	"	B-01n, N-01, N-03
Molybdenum	**4.4**	2.4	"	5	"	05/12/22 16:27	"	
Nickel	**29**	2.4	"	"	"	"	"	
Selenium	ND	9.6	"	"	"	"	"	R-06
Silver	ND	2.4	"	"	"	"	"	R-06
Thallium	ND	4.8	"	"	"	"	"	R-06
Vanadium	**15**	9.6	"	"	"	"	"	
Zinc	**210**	9.6	"	"	"	"	"	
Polychlorinated Biphenyls by GC/ECD								C-01, C-06, R-01
PCB-1016	ND	0.79	mg/kg	1	B2E0203	05/16/22 13:03	EPA 8082	
PCB-1221	ND	0.79	"	"	"	"	"	
PCB-1232	ND	0.79	"	"	"	"	"	
PCB-1242	ND	0.79	"	"	"	"	"	
PCB-1248	ND	0.79	"	"	"	"	"	
PCB-1254	ND	0.79	"	"	"	"	"	
PCB-1260	ND	0.79	"	"	"	"	"	
Surrogate: Decachlorobiphenyl		*107 %*	*(35 - 158)*		"	"	"	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*92 %*	*(37 - 121)*		"	"	"	

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Safety Management Systems	Project: Safety Management Systems	WO & Reported:
4200 Easton Dr., Suite 7	Project Number: Union Pacific SB Subdivision MP304.808	2202813
Bakersfield CA, 93309	Project Manager: Steve Patton	05/16/2022 16:12

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Safety Management Systems	Project: Safety Management Systems	WO & Reported:
4200 Easton Dr., Suite 7	Project Number: Union Pacific SB Subdivision MP304.808	2202813
Bakersfield CA, 93309	Project Manager: Steve Patton	05/16/2022 16:12

Total Metals by CVAA - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B2E0247 - EPA 7471A Preparation: EPA 7471A Prep 05/09/22 15:02										
Blank (B2E0247-BLK1)			Analyzed: 05/10/22 15:28							
Mercury	ND	0.10	mg/kg							
LCS (B2E0247-BS1)			Analyzed: 05/10/22 15:30							
Mercury	0.827	0.10	mg/kg	0.833		99	85-115			
LCS Dup (B2E0247-BSD1)			Analyzed: 05/10/22 15:33							
Mercury	0.812	0.10	mg/kg	0.833		97	85-115	2	20	
Duplicate (B2E0247-DUP1)	**Source: 2202811-01RE1**		Analyzed: 05/10/22 15:56							
Mercury	6.15	2.1	mg/kg		7.62			21	20	QR-04
Matrix Spike (B2E0247-MS1)	**Source: 2202811-01RE1**		Analyzed: 05/10/22 17:51							
Mercury	8.78	2.3	mg/kg	0.767	7.62	151	75-125			QM-4X
Matrix Spike Dup (B2E0247-MSD1)	**Source: 2202811-01RE1**		Analyzed: 05/10/22 17:53							
Mercury	9.56	2.0	mg/kg	0.668	7.62	289	75-125	8	20	QM-4X
Post Spike (B2E0247-PS1)	**Source: 2202811-01RE1**		Analyzed: 05/10/22 18:38							
Mercury	6.96		ug/L	125	54.8	NR	85-115			QL-02

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Safety Management Systems	Project: Safety Management Systems	WO & Reported:
4200 Easton Dr., Suite 7	Project Number: Union Pacific SB Subdivision MP304.808	2202813
Bakersfield CA, 93309	Project Manager: Steve Patton	05/16/2022 16:12

Total Metals by ICP - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B2E0230 - EPA 6010B Preparation: EPA 3050B 05/09/22 08:56										
Blank (B2E0230-BLK1)			Analyzed: 05/12/22 12:41							
Antimony	ND	2.5	mg/kg							
Arsenic	ND	2.0	"							
Barium	ND	1.0	"							
Beryllium	ND	0.50	"							
Cadmium	ND	0.25	"							
Chromium	ND	0.50	"							
Cobalt	ND	0.50	"							
Copper	ND	1.0	"							
Lead	1.31	0.50	"							B-01
Molybdenum	ND	0.50	"							
Nickel	ND	0.50	"							
Selenium	ND	2.0	"							
Silver	ND	0.50	"							
Thallium	ND	1.0	"							
Vanadium	ND	2.0	"							
Zinc	ND	2.0	"							
LCS (B2E0230-BS1)			Analyzed: 05/12/22 12:46							
Antimony	99.4	2.5	mg/kg	100		99	80-120			
Arsenic	98.6	2.0	"	100		99	80-120			
Barium	104	1.0	"	100		104	80-120			
Beryllium	101	0.50	"	100		101	80-120			
Cadmium	101	0.25	"	100		101	80-120			
Chromium	101	0.50	"	100		101	80-120			
Cobalt	99.6	0.50	"	100		100	80-120			
Copper	101	1.0	"	100		101	80-120			
Lead	104	0.50	"	100		104	80-120			
Molybdenum	96.6	0.50	"	100		97	80-120			
Nickel	100	0.50	"	100		100	80-120			
Selenium	99.6	2.0	"	100		100	80-120			
Silver	5.28	0.50	"	5.00		106	80-120			
Thallium	101	1.0	"	100		101	80-120			
Vanadium	103	2.0	"	100		103	80-120			
Zinc	102	2.0	"	100		102	80-120			

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Safety Management Systems	Project: Safety Management Systems	WO & Reported:
4200 Easton Dr., Suite 7	Project Number: Union Pacific SB Subdivision MP304.808	2202813
Bakersfield CA, 93309	Project Manager: Steve Patton	05/16/2022 16:12

Total Metals by ICP - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B2E0230 - EPA 6010B Preparation: EPA 3050B 05/09/22 08:56										
LCS Dup (B2E0230-BSD1)			Analyzed: 05/12/22 12:48							
Antimony	101	2.5	mg/kg	100		101	80-120	1	20	
Arsenic	99.9	2.0	"	100		100	80-120	1	20	
Barium	106	1.0	"	100		106	80-120	2	20	
Beryllium	102	0.50	"	100		102	80-120	1	20	
Cadmium	102	0.25	"	100		102	80-120	1	20	
Chromium	101	0.50	"	100		101	80-120	0.3	20	
Cobalt	101	0.50	"	100		101	80-120	1	20	
Copper	102	1.0	"	100		102	80-120	0.6	20	
Lead	105	0.50	"	100		105	80-120	1	20	
Molybdenum	98.8	0.50	"	100		99	80-120	2	20	
Nickel	102	0.50	"	100		102	80-120	1	20	
Selenium	102	2.0	"	100		102	80-120	2	20	
Silver	5.32	0.50	"	5.00		106	80-120	0.8	20	
Thallium	103	1.0	"	100		103	80-120	1	20	
Vanadium	105	2.0	"	100		105	80-120	1	20	
Zinc	103	2.0	"	100		103	80-120	1	20	
Duplicate (B2E0230-DUP1)	**Source: 2202817-01**		Analyzed: 05/12/22 16:03							
Antimony	ND	2.5	mg/kg		ND				20	
Arsenic	4.99	2.0	"		5.03			0.9	20	
Barium	83.0	0.99	"		82.3			0.8	20	
Beryllium	ND	0.49	"		ND				20	
Cadmium	ND	0.25	"		ND				20	
Chromium	26.4	0.49	"		27.1			2	20	
Cobalt	9.62	0.49	"		9.09			6	20	
Copper	14.8	0.99	"		15.0			1	20	
Lead	8.29	0.49	"		10.3			22	20	QR-04
Molybdenum	ND	0.49	"		ND				20	
Nickel	39.9	0.49	"		39.6			0.6	20	
Selenium	ND	2.0	"		ND				20	
Silver	ND	0.49	"		ND				20	
Thallium	ND	0.99	"		ND				20	
Vanadium	35.1	2.0	"		35.4			0.7	20	
Zinc	40.2	2.0	"		39.9			0.7	20	

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4200 Easton Dr., Suite 7	Project Number: Union Pacific SB Subdivision MP304.808	2202813
Bakersfield CA, 93309	Project Manager: Steve Patton	05/16/2022 16:12

Total Metals by ICP - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B2E0230 - EPA 6010B Preparation: EPA 3050B 05/09/22 08:56										
Matrix Spike (B2E0230-MS1)	**Source: 2202817-01**		Analyzed: 05/12/22 12:51							
Antimony	23.8	2.3	mg/kg	93.9	ND	25	10-101			
Arsenic	94.4	1.9	"	93.9	5.03	95	82-113			
Barium	212	0.94	"	93.9	82.3	138	24-172			
Beryllium	92.4	0.47	"	93.9	ND	98	83-112			
Cadmium	88.9	0.23	"	93.9	ND	95	80-110			
Chromium	124	0.47	"	93.9	27.1	103	73-131			
Cobalt	97.7	0.47	"	93.9	9.09	94	81-111			
Copper	113	0.94	"	93.9	15.0	105	70-134			
Lead	96.5	0.47	"	93.9	10.3	92	58-133			
Molybdenum	75.5	0.47	"	93.9	ND	80	64-116			
Nickel	130	0.47	"	93.9	39.6	96	62-131			
Selenium	85.3	1.9	"	93.9	ND	91	75-110			
Silver	4.90	0.47	"	4.69	ND	104	82-114			
Thallium	86.3	0.94	"	93.9	ND	92	68-116			
Vanadium	136	1.9	"	93.9	35.4	107	82-118			
Zinc	133	1.9	"	93.9	39.9	99	49-145			
Matrix Spike Dup (B2E0230-MSD1)	**Source: 2202817-01**		Analyzed: 05/12/22 12:53							
Antimony	26.1	2.4	mg/kg	96.0	ND	27	10-101	9	20	
Arsenic	96.4	1.9	"	96.0	5.03	95	82-113	2	20	
Barium	210	0.96	"	96.0	82.3	133	24-172	0.9	20	
Beryllium	94.1	0.48	"	96.0	ND	98	83-112	2	20	
Cadmium	91.1	0.24	"	96.0	ND	95	80-110	2	20	
Chromium	123	0.48	"	96.0	27.1	100	73-131	1	20	
Cobalt	100	0.48	"	96.0	9.09	95	81-111	3	20	
Copper	112	0.96	"	96.0	15.0	101	70-134	0.8	20	
Lead	98.9	0.48	"	96.0	10.3	92	58-133	2	20	
Molybdenum	77.2	0.48	"	96.0	ND	80	64-116	2	20	
Nickel	132	0.48	"	96.0	39.6	97	62-131	2	20	
Selenium	87.2	1.9	"	96.0	ND	91	75-110	2	20	
Silver	4.90	0.48	"	4.80	ND	102	82-114	0.04	20	
Thallium	88.5	0.96	"	96.0	ND	92	68-116	3	20	
Vanadium	132	1.9	"	96.0	35.4	101	82-118	3	20	
Zinc	135	1.9	"	96.0	39.9	99	49-145	2	20	

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Safety Management Systems	Project: Safety Management Systems	WO & Reported:
4200 Easton Dr., Suite 7	Project Number: Union Pacific SB Subdivision MP304.808	2202813
Bakersfield CA, 93309	Project Manager: Steve Patton	05/16/2022 16:12

Total Metals by ICP - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B2E0230 - EPA 6010B Preparation: EPA 3050B 05/09/22 08:56										
Post Spike (B2E0230-PS1)	**Source: 2202817-01**		Analyzed: 05/12/22 12:59							
Antimony	2.08		mg/L	2.00	0.00327	104	75-125			
Arsenic	2.14		"	2.00	0.105	102	75-125			
Barium	3.87		"	2.00	1.72	108	75-125			
Beryllium	2.02		"	2.00	0.00308	101	75-125			
Cadmium	1.96		"	2.00	-0.0196	98	75-125			
Chromium	2.58		"	2.00	0.565	101	75-125			
Cobalt	2.15		"	2.00	0.190	98	75-125			
Copper	2.45		"	2.00	0.313	107	75-125			
Lead	2.21		"	2.00	0.216	100	75-125			
Molybdenum	2.14		"	2.00	0.00288	107	75-125			
Nickel	2.79		"	2.00	0.827	98	75-125			
Selenium	2.01		"	2.00	-0.0546	101	75-125			
Silver	0.106		"	0.100	-0.00367	106	75-125			
Thallium	1.95		"	2.00	-0.0283	97	75-125			
Vanadium	2.82		"	2.00	0.738	104	75-125			
Zinc	2.82		"	2.00	0.834	99	75-125			

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Safety Management Systems	Project: Safety Management Systems	WO & Reported:
4200 Easton Dr., Suite 7	Project Number: Union Pacific SB Subdivision MP304.808	2202813
Bakersfield CA, 93309	Project Manager: Steve Patton	05/16/2022 16:12

Polychlorinated Biphenyls by GC/ECD - Quality Control

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B2E0203 - EPA 8082 Preparation: EPA 3550C 05/06/22 15:20										
Blank (B2E0203-BLK2)			Analyzed: 05/06/22 20:20							C-01, C-06
PCB-1016	ND	0.020	mg/kg							
PCB-1221	ND	0.020	"							
PCB-1232	ND	0.020	"							
PCB-1242	ND	0.020	"							
PCB-1248	ND	0.020	"							
PCB-1254	ND	0.020	"							
PCB-1260	ND	0.020	"							
Surrogate: Decachlorobiphenyl		*0.00656*	"	*0.00833*		*79*	*35-158*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*0.00572*	"	*0.00833*		*69*	*37-121*			
LCS (B2E0203-BS2)			Analyzed: 05/06/22 19:54							C-01, C-06
PCB-1016	0.0526	0.020	mg/kg	0.0667		79	64-110			
PCB-1260	0.0565	0.020	"	0.0667		85	60-121			
Surrogate: Decachlorobiphenyl		*0.00634*	"	*0.00833*		*76*	*35-158*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*0.00500*	"	*0.00833*		*60*	*37-121*			
LCS Dup (B2E0203-BSD2)			Analyzed: 05/06/22 20:07							C-01, C-06
PCB-1016	0.0510	0.020	mg/kg	0.0667		76	64-110	3	30	
PCB-1260	0.0558	0.020	"	0.0667		84	60-121	1	30	
Surrogate: Decachlorobiphenyl		*0.00667*	"	*0.00833*		*80*	*35-158*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*0.00565*	"	*0.00833*		*68*	*37-121*			
Duplicate (B2E0203-DUP2)	**Source: 2202711-01**		Analyzed: 05/16/22 14:13							C-01, C-06, R-01
PCB-1016	0.0648	0.040	mg/kg		ND				30	
PCB-1221	ND	0.040	"		ND				30	
PCB-1232	ND	0.040	"		ND				30	
PCB-1242	ND	0.040	"		ND				30	
PCB-1248	ND	0.040	"		ND				30	
PCB-1254	ND	0.040	"		ND				30	
PCB-1260	ND	0.040	"		ND				30	
Surrogate: Decachlorobiphenyl		*0.00367*	"	*0.00833*		*44*	*35-158*			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene		*0.00358*	"	*0.00833*		*43*	*37-121*			

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4200 Easton Dr., Suite 7	Project Number: Union Pacific SB Subdivision MP304.808	2202813
Bakersfield CA, 93309	Project Manager: Steve Patton	05/16/2022 16:12

Sample Method Summary

Analysis	Method	Matrix	Laboratory & Certification
Polychlorinated Biphenyls by GC/ECD			
8082 PCB	EPA 8082	Solid	OEC, CA-ELAP,NELAP
Total Metals by CVAA			
Mercury Total EPA 7471A	EPA 7471A	Solid	OEC, Internal
Total Metals by ICP			
6010B Total Antimony	EPA 6010B	Solid	OEC, CA-ELAP,NELAP
6010B Total Arsenic	EPA 6010B	Solid	OEC, CA-ELAP,NELAP
6010B Total Barium	EPA 6010B	Solid	OEC, CA-ELAP,NELAP
6010B Total Beryllium	EPA 6010B	Solid	OEC, CA-ELAP,NELAP
6010B Total Cadmium	EPA 6010B	Solid	OEC, CA-ELAP,NELAP
6010B Total Chromium	EPA 6010B	Solid	OEC, CA-ELAP,NELAP
6010B Total Cobalt	EPA 6010B	Solid	OEC, CA-ELAP,NELAP
6010B Total Copper	EPA 6010B	Solid	OEC, CA-ELAP,NELAP
6010B Total Lead	EPA 6010B	Solid	OEC, CA-ELAP,NELAP
6010B Total Molybdenum	EPA 6010B	Solid	OEC, CA-ELAP,NELAP
6010B Total Nickel	EPA 6010B	Solid	OEC, CA-ELAP,NELAP
6010B Total Selenium	EPA 6010B	Solid	OEC, CA-ELAP,NELAP
6010B Total Silver	EPA 6010B	Solid	OEC, CA-ELAP,NELAP
6010B Total Thallium	EPA 6010B	Solid	OEC, CA-ELAP,NELAP
6010B Total Vanadium	EPA 6010B	Solid	OEC, CA-ELAP,NELAP
6010B Total Zinc	EPA 6010B	Solid	OEC, CA-ELAP,NELAP

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Safety Management Systems	Project: Safety Management Systems	WO & Reported:
4200 Easton Dr., Suite 7	Project Number: Union Pacific SB Subdivision MP304.808	2202813
Bakersfield CA, 93309	Project Manager: Steve Patton	05/16/2022 16:12

Notes and Definitions

Qualifier	Definition
MDL	Method Detection Limit
RL	Reporting Limit (Quantitation Limit)
ND	Analyte NOT DETECTED at or above the method limit (MDL)
RPD	Relative Percent Difference
B-01	The method blank contains analyte at a concentration above the RL/PQL.
B-01n	The method blank contains analyte at a concentration above the RL/PQL. Concentration is less than 5% of the sample result, which is negligible according to method criteria.
C-01	To reduce matrix interference, the sample extract has undergone sulfuric acid clean-up, method 3665, which is specific to hydrocarbon contamination.
C-06	To reduce matrix interference, the sample extract has undergone pentane clean-up, which is specific to contamination from high molecular weight material (asphaltenes).
N-01	Analyte concentration exceeds TTLC.
N-02	Analyte concentration below TTLC but above 10x STLC.
N-03	Analyte concentration above 20x TCLP.
QL-02	The spike recovery is outside the control limits.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
QR-04	The RPD exceeded the QC control limits.
R-01	The Reporting Limit has been raised to account for matrix interference.
R-06	The Reporting Limit has been raised to account for the presence of high levels of analytes.
TMP3	Temperature [Out-Acceptable] Direct from Field

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4200 Easton Dr., Suite 7	Project Number: Union Pacific SB Subdivision MP304.808	2202813
Bakersfield CA, 93309	Project Manager: Steve Patton	05/16/2022 16:12

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CA-ELAP 2438, TNI02666
307 Roemer Way, Santa Maria, CA 93454
Client Connect: client.oec.com\reports
www.oecusa.com
TEL: (805) 922-4772
FAX: (805) 925-3376

Oilfield Environmental & Compliance, Inc.
307 Roemer Way Suite 300, Santa Maria, CA 93454
Phone: (805) 922-4772 Fax: (805) 925-3376 www.oecusa.com
101 Adkisson Way, Taft, CA 93268 Phone: (661) 762-9143

OEC Work Order (Lab Use Only): 2202313

CHAIN OF CUSTODY

Rev 02/09/2021

Page 1 of 1

Company: Safety Management Systems.
Address: 4200 Easton Dr. Ste 7; Bakersfield 93309
Phone: (805) 587-8983 Email: Steve.Patton@arcadian.com
Report To: Steve Patton Sampler (Print): Steve Patton

Project Name / No: Althouse & Meade Union Pacific SB Subdivision MP304.808
Site: Honda Bridge PO #:
Comments:

Bacteriological Sample Type: Routine ☐ Repeat ☐ Replacement ☐ Other ☐

Report Format(s): PDF(std) ■ EDD ☐ EDF(i)☐ WellSTAR(i)☐ LTS(i)☐
OTHER (Custom) EDD ☐:
(i) EDF Global ID/Log Code, LTS(SDWIS) PWS:
WellSTAR Facility / API# / Entity#:

Requested Turnaround Time [TAT]: (Surcharges apply to any TAT other than 'Standard'):
ASAP ☐ 1 Day ☐ 2 Day ☐ 3 Day ☐ 5 Day ■ Standard ☐

* A =air/vapor, P =product/oil, S =solid/sediment, Waters (DW =drinking, GW =ground, PW =produced, WW =waste)

Lab Use Only	Sampled Date & Time		Matrix*	# of Cont.	Sample ID	CAM 17	PCB	Special Instructions
01	5/3/22	1145	S	1	503-HB-15	|	|	TTLC only on the CAM 17 analysis. Please do not run STLC/TCLP.
02	↓	1230	↓	↓	503-HB-22	|	|	
03	↓	1415	↓	↓	503-HB-38	|	|	
					9.0			

All requests subject to OEC Terms & Conditions.

Relinquished by (Signature):	Relinquished by (Print Name & Company):	Date:	Time:	Received by (Signature):	Received by (Print Name & Company):
[signature]	Steve Patton SMS.	5/4/22	16:00	[signature] Keith	Keith OEC

Safety Management Systems, LLC
4200 Easton Dr., Ste. 7, Bakersfield, CA 93309
Phone: 661-241-9343

Sample Receipt

Work Order Review is Complete

Work Order

2202813 Refresh

Client Name	Temp °C	Refrigerator(s)	COC Received	Login
Safety Management Systems	9	8	05/04/2022 16:00	05/06/2022 10:00

Recorded Corrected, Acceptable Range 0°C to 6°C (See Exception Notes Below)

Sample Transport

- ☐ OECCourier/Sampler
- ☐ After Hours Drop Off
- ☑ Delivery (Other than OEC)
- ☐ Shipment Carrier
- Tracking#

Custody Seals	☑ None Present			
Cooler(s)	☐ Present, Intact	☐ Present, Not Intact	☐ None	
Sample(s)	☐ Present Intact	☐ Present, Not Intact	☐ None	

Condition/Preservation

		Yes	No	N/A
☐	Received On Ice Within Range (Acceptable)			
☑	Received Outside Range(Acceptable)			
☑	Direct from Field on Ice			
☐	Ambient: Air or Filter Matrix			
☐	Received Ambient, Placed on Ice			
☐	Sample Temperature Accetable for Analysis			
☐	Received Outside Range [Exception]*			
☐	Insufficient Ice or Unknown			
☐	Excessive Free Liquid			
	Completed COCs Received with Sample(s)	☑	☐	
	Correct Container(s) Preserve for Analysis	☑	☐	
	Container(s) Intact and Good Condition	☑	☐	
	Container Label(s) Consistent with COC	☑	☐	
	OEC Preservation Added**	☐	☑	
	Sample Quantity Sufficent	☑	☐	

Safety Management Systems, LLC
4200 Easton Dr., Ste. 7, Bakersfield, CA 93309
Phone: 661-241-9343

Containers, COC Changes, And/Or Corrections

Cotaniner ID (COC)	Container Description	Home	Matrix	Preservative	pH/Chlorine /Sulfur	Comments
01A	Plastic Bag	Fridge 8 - Walk-In	Solid			
02A	Plastic Bag	Fridge 8 - Walk-In	Solid			
03A	Plastic Bag	Fridge 8 - Walk-In	Solid			

Receipt Login By: GSR-05/06/22 02:46

Receipt Reviewed By: JVZ-05/06/22 03:10

Safety Management Systems, LLC
4200 Easton Dr., Ste. 7, Bakersfield, CA 93309
Phone: 661-241-9343

Appendix D – Common Terminology

ACM: *Asbestos Containing Material*. Any material containing more than one percent asbestos.

ACCM: *Asbestos Containing Construction Material*. Any manufactured construction material that contains more than one tenth of one percent asbestos by weight.

PACM: *Presumed Asbestos Containing Material*. Thermal system insulation (TSI) or surfacing materials found in buildings constructed no later than 1980.

TSI: *Thermal System Insulation*. ACM applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or gain.

Surfacing Material: Material that is sprayed on, troweled on, or otherwise applied to surfaces.

NESHAP: National Emission Standard for Hazardous Air Pollutants (40 CFR Part 61, Subpart M).

RACM: *Regulated Asbestos Containing Material*. Friable ACM; non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; or non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to a powder by forces expected to act upon the material during demolition or renovation activity.

Friable: Any material that, when dry, can be crumbled, pulverized or reduced to powder using hand pressure.

Lead-Based Paint: Paint or other surface coatings that contain lead at concentrations greater than or equal to 5,000 ppm, 1.0 mg/cm^2, or 0.5% by weight.

Lead Containing Paint: Non-regulatory term, used to identify paint that contains lead, but at concentrations less than those used to define Lead-Based Paint.

Deteriorated paint: Any paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligatoring, cracking, or otherwise becoming separated from the substrate.

Trigger Task: Tasks listed in Cal/OSHA's Lead In Construction Standard (Title 8 Section 1532.1 (d)(2)) that trigger specific employee protective measures until an exposure assessment for the task has been completed.

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Phone: 661-241-9343

APPENDIX S. AIR QUALITY AND GREENHOUSE GAS TECHNICAL MEMORANDUM (AMBIENT CONSULTING, 10/11/2022)

AMBIENT
AIR QUALITY & NOISE CONSULTING

75 Higuera Street, Suite 105
San Luis Obispo, CA 93401
www.Ambient.Consulting

AIR QUALITY & GREENHOUSE GAS TECHNICAL MEMORANDUM

Date: October 11, 2022

To: LynneDee Althouse, Project Manager
Althouse and Meade

From: Kurt Legleiter, Principal

Subject: **Air Quality & Greenhouse Gas Construction Emissions Modeling Report for the La Cañada Honda Bridge Replacement Project, Vandenburg Space Force Base, CA**

INTRODUCTION

The purpose of this report is to provide a quantitative assessment of the air quality and greenhouse gas impacts associated with construction of the proposed La Cañada Honda Bridge Replacement Project (Project). The project site is located on the Vandenberg Space Force Base (VSFB) in Santa Barbara County, California, and within the jurisdiction of the Santa Barbara County Air Pollution Control District (SBCAPCD).

As the project proponent, Union Pacific Railroad (UPRR) has determined that the existing steel supports at Honda Bridge have corroded and deteriorated, rendering the bridge in need of replacement due to its safety risk. Although Honda Bridge is on UPRR property, most bridge construction activities and project components are on VSFB.

Union Pacific Railroad proposes to replace Honda Bridge with a new railroad bridge that would be consistent with Federal Railroad Administration (FRA) standards and current UPRR safety standards. Built in 1898, the existing steel supports at Honda Bridge have corroded and deteriorated, rendering the bridge in need of replacement due to its safety risk. Honda Bridge supports UPRR's Santa Barbara Subdivision, the only route by which passenger and freight trains travel through Ventura, Santa Barbara, and San Luis Obispo Counties. This includes Amtrak's Pacific Surfliner and Coast Starlight passenger trains that provide rail service between San Diego to San Luis Obispo, California (Pacific Surfliner) and Seattle, Washington to Los Angeles, California (Coast Starlight). If the bridge continues to deteriorate, train service would become unsafe, diverting rail travel to the inland portions of California's Central Valley that would result in significant delays to passenger and freight trains.

The main project purpose is to maintain publicly available railroad transit opportunities and continue rail service to and along Southern California coastal cities and towns. The benefits of the project result directly from the main purpose, and not from any ancillary component.

PROPOSED PROJECT SUMMARY

The Proposed Action Area totals approximately 20.0 acres, including 17.6 acres for construction staging and bridge replacement, and 2.4 acres for fiber optic relocation and replacement. An additional 10.3 acres of potential watershed enhancement is also included in the Proposed Action Area for potential mitigation purposes.

The Proposed Action includes removal of the existing 541-foot La Cañada Honda Bridge deck and steel towers located at the mouth of Honda Canyon on South VSFB in Santa Barbara County, California. The new bridge is projected to be 541 feet in length, with the deck supported by five new cast-in-place concrete columns (7-feet diameter) with concrete pier caps (columns and pier caps are a maximum of 95 feet high), anchored by below-ground steel piles and casing. The steel piles and casing would be covered by cast-in-place concrete pile caps that are 14-feet wide and range in length and depth according to Pier number.

Existing fiber optic lines located in the construction zone along UPRR property would be temporarily relocated prior to start of bridge construction. Relocation would require the lines to be cut, re-routed, and placed within a protective conduit except at driveway crossings where lines would be temporarily buried along the west shoulder of Coast Road. Upon bridge project completion, fiber optic carriers may replace up to 7 miles of existing fiber optic line (from milepost [MP] 299 at the northern extent through MP 307). If replaced, new fiber optic lines would be routed through existing hand holes. Minimal ground disturbance would occur at existing hand hole locations and access trails

Upon Project completion all temporary cut/fill material would be replaced/removed, and all temporarily disturbed areas in the lower construction work area would be stabilized with native vegetation and restored, as needed.

NEARBY SENSITIVE LAND USES

There are no noise sensitive land uses within the proposed project action area.

AIR QUALITY

REGULATORY FRAMEWORK

Air quality within the South Central Coast Air Basin (SCCAB) is regulated by several jurisdictions including the U.S. EPA, ARB, and the SBCAPCD. Each of these jurisdictions develops rules, regulations, and policies to attain the goals or directives imposed upon them through legislation.

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the California Environmental Quality Act (CEQA) Guidelines, air quality impacts associated with the proposed project would be considered significant if it would:

a) Conflict with or obstruct implementation of the applicable air quality plan.
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
c) Expose sensitive receptors to substantial pollutant concentrations.
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

To assist in the evaluation of air quality impacts, the SBCAPCD has developed recommended CEQA significance thresholds, which are contained in the SBCAPCD Scope and Content of Air Quality Sections in Environmental Documents (SBCAPCD 2022). For the purposes of this analysis, project emissions are considered potentially significant impacts if any of the SBCAPCD recommended thresholds are exceeded.

For construction-related emissions, the SBCAPCD recommends 25 tons per year for reactive organic compounds (ROC, also commonly referred to as reactive organic gases [ROG]) or oxides of nitrogen (NO_X) as a guideline for determining the CEQA significance of construction impacts. In addition, the SBCAPCD recommends incorporation of standard mitigation measures to minimize localized air quality impacts commonly associated with construction activities, such as fugitive dust, and to ensure consistency with air quality attainment and maintenance efforts. For NEPA analysis purposes, project-generated emissions were evaluated in comparison to the U.S. Air Force's air quality impact insignificance criteria for areas designated attainment of the National Ambient Air Quality Standards (HQ AFCEC/CATQ 2020).

ASSESSMENT METHODOLOGY

Short-term Construction Impacts

For CEQA analysis purposes, short-term emissions associated with the construction of the proposed project were calculated using the California Emissions Estimator Model (CalEEMod), version 2020.4.0, computer program. For NEPA analysis purposes, short-term emissions associated with the construction

of the proposed project were calculated using the U.S. Air Force's Air Conformity Applicability Model (ACAM), version 5.0.17b (Solutio Environmental, Inc., 2019). Construction emissions were calculated assuming an estimated overall construction period of approximately twenty months, including all four Project components (bridge replacement, construction and temporary staging, fiber optic relocation and replacement, and wetland/waters restoration and potential watershed enhancement for mitigation). The Project components were included in a 14-stage construction schedule provided for the proposed project, including start/end dates, duration, construction equipment, worker trips and distance, vendor trips and distances, and haul trips and distances. Modeling assumptions, construction schedule/equipment, and output files are included in Appendix A of this report.

PROJECT IMPACTS AND MITIGATION MEASURES

Short-term Construction Emissions (CEQA Analysis)

Construction-generated emissions are of temporary duration, lasting only as long as construction activities occur, but have the potential to represent a significant air quality impact. Construction of the proposed project would result in the temporary generation of emissions associated with bridge replacement, motor vehicle exhaust associated with construction equipment and worker trips, as well as the movement of construction equipment on unpaved surfaces. Short-term construction emissions would result in increased emissions of ozone-precursor pollutants (i.e., reactive organic gases [ROG] and NO_X) and emissions of particulate matter (PM).

Estimated maximum annual emissions associated with construction of the proposed project are presented in Table 1. As depicted in Table 1, the maximum annual construction-generated emissions would total approximately 0.63 tons/year of ROG and 5.87 tons/year of NO_X. Maximum annual construction emissions would not exceed the SBCAPCD-recommended significance threshold of 25 tons/year. However, since Santa Barbara County violates the state standard for PM_{10}, dust control measures are required for all projects involved in earthmoving activities regardless of the significance of the fugitive dust impacts. As a result, construction-generated emissions would be considered to have a **potentially significant impact**.

Table 1. Construction Emissions (CEQA Analysis)

Construction Year	Emissions (tons per year)					
	VOC/ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2023	0.63	5.87	5.42	0.01	0.93	0.56
2024	0.51	4.99	4.95	0.01	2.94	0.20
SBCAPCD Significance Thresholds:	25	25	-	-	-	-
Exceeds Significance Thresholds?:	No	No	-	-	-	-

ROG=Reactive Organic Compounds; NO_X=Oxides of Nitrogen; CO=Carbon Monoxide; SO_2=Sulfur Dioxide; PM_{10}=Particulate Matter ≤10 Microns; $PM_{2.5}$=Particulate Matter ≤2.5 Microns
Emissions were quantified using the CalEEMod computer program in accordance with SBCAPCD guidance and may differ slightly from emissions presented for NEPA analysis purposes due to differences in modeling assumptions and emission factors.
Refer to Appendix A for modeling assumptions and results.

Mitigation Measure AQ-1:

The following SBCAPCD-recommended construction mitigation measures shall be implemented, to the extent feasible, to minimize short-term construction emissions associated with ground-disturbance activities, such as grading and excavation activities:

Dust Control Measures:

- *During construction, use water trucks, sprinkler systems, or dust suppressants in all areas of vehicle movement to prevent dust from leaving the site and from exceeding the APCD's limit of 20% opacity for greater than 3 minutes in any 60 minute period. When using water, this includes wetting down areas as needed but at least once in the late morning and after work is completed for the day. Increased watering frequency should be required when sustained wind speed exceeds 15 mph. Reclaimed water should be used whenever possible. However, reclaimed water should not be used in or around crops for human consumption*
- *Onsite vehicle speeds shall be no greater than 15 miles per hour when traveling on unpaved surfaces.*
- *Install and operate a track-out prevention device where vehicles enter and exit unpaved roads onto paved streets. The track-out prevention device can include any device or combination of devices that are effective at preventing track out of dirt such as gravel pads, pipe-grid track-out control devices, rumble strips, or wheel-washing systems.*
- *If importation, exportation, and stockpiling of fill material is involved, soil stockpiled for more than one day shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting fill material to and from the site shall be tarped from the point of origin.*
- *Minimize the amount of disturbed area. After clearing, grading, earthmoving, or excavation is completed, treat the disturbed area by watering, OR using roll-compaction, OR revegetating, OR by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur. All roadways, driveways, sidewalks etc. to be paved should be completed as soon as possible.*
- *Schedule clearing, grading, earthmoving, and excavation activities during periods of low wind speed to the extent feasible. During periods of high winds (>25 mph) clearing, grading, earthmoving, and excavation operations shall be minimized to prevent fugitive dust created by onsite operations from becoming a nuisance or hazard.*
- *The contractor or builder shall designate a person or persons to monitor and document the dust control program requirements to ensure any fugitive dust emissions do not result in a nuisance and to enhance the implementation of the mitigation measures as necessary to prevent transport of dust offsite. Their duties shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District prior to grading/building permit issuance and/or map clearance.*

Equipment Emissions Control Measures:

The following measures are required by state law:

- *All portable diesel-powered construction equipment greater than 50 brake horsepower (bhp) shall be registered with the state's portable equipment registration program OR shall obtain an APCD permit. Fleet owners of diesel-powered mobile construction equipment greater than 25 hp are subject to the California Air Resource Board (CARB) In-Use Off-Road Diesel-Fueled Fleets Regulation (Title 13, California Code of Regulations (CCR), §2449), the purpose of which is to reduce oxides of nitrogen (NOx), diesel particulate matter (DPM), and other criteria pollutant emissions from in-use off-road diesel-fueled vehicles. Off-road heavy-duty trucks shall comply with the State Off-Road Regulation. For more information, see www.arb.ca.gov/msprog/ordiesel/ordiesel.htm.*
- *Fleet owners of diesel-fueled heavy-duty trucks and buses are subject to CARB's On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation (Title 13, CCR, §2025), the purpose of which is to reduce DPM, NOx and other criteria pollutants from in-use (on-road) diesel-fueled vehicles. For more information, see www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm.*
- *All commercial off-road and on-road diesel vehicles are subject, respectively, to Title 13, CCR, §2449(d)(3) and §2485, limiting engine idling time. Off-road vehicles subject to the State Off-Road Regulation are limited to idling no more than five minutes. Idling of heavy-duty diesel trucks during loading and unloading shall be limited to five minutes, unless the truck engine meets the optional low-NOx idling emission standard, the truck is labeled with a clean-idle sticker, and it is not operating within 100 feet of a restricted area.*

The following measures are recommended:

- *Diesel equipment meeting the CARB Tier 3 or higher emission standards for off-road heavy-duty diesel engines should be used to the maximum extent feasible.*
- *On-road heavy-duty equipment with model year 2010 engines or newer should be used to the maximum extent feasible.*
- *Diesel powered equipment should be replaced by electric equipment whenever feasible. Electric auxiliary power units should be used to the maximum extent feasible.*
- *Equipment/vehicles using alternative fuels, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel, should be used on-site where feasible.*
- *Catalytic converters shall be installed on gasoline-powered equipment, if feasible.*
- *All construction equipment shall be maintained in tune per the manufacturer's specifications.*
- *The engine size of construction equipment shall be the minimum practical size. The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time.*
- *Construction worker trips should be minimized by requiring carpooling and by providing for lunch onsite.*

- *Construction truck trips should be scheduled during non-peak hours to reduce peak hour emissions whenever feasible.*
- *Proposed truck routes should minimize to the extent feasible impacts to residential communities and sensitive receptors.*
- *Construction staging areas should be located away from sensitive receptors such that exhaust and other construction emissions do not enter the fresh air intakes to buildings, air conditioners, and windows.*

Significance After Mitigation

Mitigation Measure AQ-1 would require implementation of dust-control measures for ground-disturbing activities, as well as, measures for the control of construction equipment emissions, including emissions of diesel particulate matter. Implementation of PM control measures would reduce emissions of fugitive dust by approximately 50 percent, or more. In addition, the project would be required to comply with SBCAPCD's Rule 345 for the control of fugitive dust associated with construction and demolition activities. Asphalt paving activities, if required, would also be required to comply with SBCAPCD's Rule 329 for the use of cutback and emulsified asphalt paving materials. With mitigation and compliance with applicable regulatory requirements, this impact would be considered **less than significant**.

Short-term Construction Emissions (NEPA Analysis)

Estimated maximum annual emissions associated with construction of the proposed project are presented in Table 2. As depicted in Table 2, the maximum annual construction-generated emissions would total approximately 0.84 tons/year of ROG, 4.86 tons/year of NO_X, 5.85 tons/year of CO, 0.01 tons/year of SO_2, 0.35 tons/year of PM_{10}, 0.20 tons/year of $PM_{2.5}$. Emissions of lead (Pb) and ammonia (NH_3) would be negligible (less than 0.01 tons/year). Maximum annual construction emissions would not exceed the insignificance criteria. This impact would be considered **less than significant**.

Table 2. Construction Emissions (NEPA Analysis)

Construction Year	Emissions (tons per year)								
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	Pb	NH_3	CO_2e
2023	0.84	4.86	5.85	0.01	0.35	0.20	0.00	0.01	1,421.5
2024	0.57	3.07	4.31	0.01	0.13	0.12	0.00	<0.01	1,004.5
Threshold:	100	100	250	250	250	250	25	250	-
Exceeds Insignificance Criteria?:	No	No	No	No	No	No	No	No	-

VOC=Volatile Organic Compounds; NO_X=Oxides of Nitrogen; CO=Carbon Monoxide; SO_2=Sulfur Dioxide; PM_{10}=Particulate Matter ≤10 Microns; $PM_{2.5}$=Particulate Matter ≤2.5 Microns; Pb=Lead; NH_3= Ammonia
Emissions were quantified using the ACAM computer program in accordance with U.S. Air Force guidance and may differ slightly from emissions presented for CEQA analysis purposes due to differences in modeling assumptions and emission factors.
Refer to Appendix A for modeling assumptions and results.

GREENHOUSE GASES

THRESHOLD OF SIGNIFICANCE

The County of Santa Barbara has adopted an interim GHG emissions CEQA threshold of significance of 300 metric tons of carbon dioxide equivalent ($MTCO_2e$) per year. In accordance with County-recommended guidance, construction-generated GHG emissions are amortized over a 30-year period and included with estimated long-term operational GHG emissions for comparison to the interim GHG threshold (Santa Barbara County 2021). Projects that exceed this screening threshold can also be evaluated based on an efficiency GHG emissions threshold based on the project's estimated service population, if applicable. The County's interim CEQA thresholds are based on SB 32 Year 2030 GHG-reduction goals, which take into consideration the emission reduction strategies outlined in ARB's 2017 Scoping Plan. Projects that do not exceed the County's interim CEQA thresholds would be considered to have a less than significant increase in GHG emissions and would not be expected to interfere with GHG-reduction planning efforts (Santa Barbara County 2021). For purposes of this analysis, amortized construction-generated emissions were evaluated in comparison to the County's interim CEQA threshold of 300 $MTCO_2e$ per year.

ASSESSMENT METHODOLOGY

Short-term Construction Impacts

For CEQA analysis purposes, short-term emissions associated with the construction of the proposed project were calculated using the California Emissions Estimator Model (CalEEMod), version 2020.4.0, computer program. For NEPA analysis purposes, short-term emissions associated with the construction of the proposed project were calculated using the U.S. Air Force's Air Conformity Applicability Model (ACAM), version 5.0.17b (Solutio Environmental, Inc., 2019). To the extent available, modeling assumptions, including construction equipment requirements, hours of use, worker, and vendor vehicle trips, and trip distances were based on information provided for the proposed project. All other modeling assumptions were based on model defaults. For CEQA analysis purposes, construction-generated GHG emissions were amortized over a 30-year period and included with estimated long-term operational GHG emissions for impact assessment purposes, consistent with County-recommended guidance (Santa Barbara County 2021).

PROJECT IMPACTS AND MITIGATION MEASURES

Short-term Construction Emissions (CEQA Analysis)

Estimated increases in GHG emissions associated with the construction of the proposed project are summarized in Table 3. Based on the modeling conducted, construction-related GHG emissions would total approximately 2,562 $MTCO_2e$. Amortized GHG emissions, when averaged over the conservative assumption of 30-year life of the project, would total approximately 85 $MTCO_2e$/year. Actual emissions

may vary, depending on the final construction schedules, equipment required, and activities conducted. Project-generated construction emissions would not exceed the County's GHG threshold of 300 $MTCO_2e$ per year. As a result, this impact is considered **less than significant**.

Table 3. Construction GHG Emissions (CEQA Analysis)

Construction Year	GHG Emissions ($MTCO_2e$/Year)
2023	1,248.49
2024	1,313.62
Construction Total:	2,562.10
Amortized Construction Emissions:	85.40
Significance Threshold:	300
Exceeds Threshold?	No

$MTCO_2e$ = Metric tons of carbon dioxide equivalent
Amortized emissions are quantified based on a 30-year project life.
Refer to Appendix A for modeling assumptions and results.

Short-term Construction Emissions (NEPA Analysis)

Estimated increases in GHG emissions associated with the construction of the proposed project are summarized in Table 4. Based on the modeling conducted, construction-related GHG emissions would total approximately 2,426 $MTCO_2e$. As noted above, construction-generated emissions would be short-term, occurring over an approximate 20-month period. Implementation of recommended CEQA mitigation measures would include measures that would reduce emissions of GHGs generated by construction-related equipment and vehicles, including black carbon, which is considered a short-lived climate pollutant. With implementation of the recommended mitigation measures, this impact would be considered **less than significant**.

Table 4. Construction GHG Emissions (NEPA Analysis)

Construction Year	GHG Emissions ($MTCO_2e$/Year)
2023	1,421.5
2024	1,004.5
Construction Total:	2,426

$MTCO_2e$ = Metric tons of carbon dioxide equivalent
Refer to Appendix A for modeling assumptions and results.

REFERENCES

U.S. Air Force Civil Engineer Center Headquarters/Environmental Quality Technical Support Branch (HQ AFCEC/CZTQ); Air Quality Compliance Technical Support Branch. July 2020 (revised November 2020). *Level II, Air Quality Quantitative Assessment, Insignificance Criteria.* Available at Website url: https://aqhelp.com/Documents/Level%20II%20Air%20Quality%20Quantitative%20Assessment%20Insignificance%20Criteria%20-%20Reviewed%20Nov%202020.pdf.

Santa Barbara County Air Pollution Control District (SBCAPCD). 2022. *Scope and Content of Air Quality Sections in Environmental Documents*. Available at Website url: https://www.ourair.org/wp-content/uploads/ScopeContentJanuary2022-LimitedUpdates.pdf

Santa Barbara County Planning and Development. 2021. *Environmental Thresholds and Guideline Manual*. Available at Website url: http://www.sblafco.org/asset.c/1375

Solutio Environmental, Inc. 2019. *U.S. Air Force Air Conformity Applicability Model (ACAM), version 5.0.17b.*

APPENDIX A
EMISSIONS MODELING

Equipment Type	Hours/Day	Quantity	HP	Days of Use	Haul Trips		Vendor Trips		Worker Trips	
					One-way	miles/trip	One-way	miles/trip	One-way	miles/trip
Stage 1: Access Road construction\Relocate utilities. Date: Feb-23 to Apr-23										
Air Compressor 85CFM	7	1	default	57	292	0.17	22	16	17	16
Compactor CS56 84" Single	7	1	157	57						
Compactor walk behind 30"	7	1	default	57						
Dozer D-6	7	2	215	57						
Excavator 308	7	1	69.5	57						
Excavator 320	7	1	172	57						
Excavator 336	7	2	311	57						
Excavator Mini 303	7	1	23.6	57						
Grader 14M	7	1	238	57						
Loader 950	7	3	250	57						
Manlift 80ft-110ft	7	4	70	57						
Office Generator	7	1	default	57						
Stage 2: Elevated work platform construction. Date: Apr-23 to May-23										
12000 Manitowoc Crane	7	1	285	20	146	0.17	0	1	17	16
12K Forklift	7	1	130	20						
14000 Manitowoc Crane	7	1	340	20						
Air Compressor 85CFM	7	1	default	20						
Compactor CS56 84" Single	7	1	157	20						
Compactor walk behind 30"	7	1	default	20						
Dozer D-6	7	2	215	20						
Drill Air Track Sulivan	7	1	265	20						
Drill Hennessy HD 110 or similar	7	1	114	20						
Excavator 308	7	1	69.5	20						
Excavator 320	7	1	172	20						
Excavator 336	7	2	311	20						
Excavator Mini 303	7	1	23.6	20						
Loader 950	7	3	250	20						
Manlift 80ft-110ft	7	4	70	20						
Office Generator	7	1	default	20						
Toe Behind Welders-400-500 amps	7	4	default	20						
Stage 3: Finish constructing work pad/crane pad, shoring and deep foundations. Date: May-23 to Aug-23										
12000 Manitowoc Crane	7	1	285	50	0	0	8	16	17	16
12K Forklift	7	1	130	50						
14000 Manitowoc Crane	7	1	340	50						
Air Compressor 85CFM	7	1	default	50						
Compactor CS56 84" Single	7	1	157	50						
Compactor walk behind 30"	7	1	default	50						
Dozer D-6	7	2	215	50						
Drill Air Track Sulivan	7	1	265	50						
Drill Hennessy HD 110 or similar	7	1	114	50						
Excavator 308	7	1	69.5	50						
Excavator 320	7	1	172	50						
Excavator 336	7	2	311	50						
Excavator Mini 303	7	1	23.6	50						
Loader 950	7	3	250	50						
Lo-Drill / SR30 Drill	7	1	200	50						
Manlift 80ft-110ft	7	4	default	50						
Office Generator	7	1	default	50						
Toe Behind Welders-400-500 amps	7	4	default	50						

Equipment Type	Hours/Day	Quantity	HP	Days of Use	Haul Trips		Vendor Trips		Worker Trips	
					One-way	miles/trip	One-way	miles/trip	One-way	miles/trip
Stage 4: Access roads, deep foundations, shoring and earthwork. Date: Aug-23 to Sep-23										
12000 Manitowoc Crane	7	1	285	31						
12K Forklift	7	1	130	31						
14000 Manitowoc Crane	7	1	340	31						
Air Compressor 85CFM	7	1	default	31						
Compactor CS56 84" Single	7	1	157	31						
Compactor walk behind 30"	7	1	default	31						
Excavator 320	7	1	172	31	0	0	13	16	17	16
Excavator 336	7	2	311	31						
Excavator Mini 303	7	1	23.6	31						
Loader 950	7	3	250	31						
Lo-Drill / SR30 Drill	7	1	200	31						
Office Generator	7	1	default	31						
Toe Behind Welders-400-500 amps	7	4	default	31						
Stages 5 through 6: Structures and deep foundations. Date: Sep-23 to Nov-23										
12000 Manitowoc Crane	7	1	285	35						
12K Forklift	7	1	130	35						
14000 Manitowoc Crane	7	1	340	35						
Air Compressor 85CFM	7	1	default	35						
Compactor CS56 84" Single	7	1	157	35						
Compactor walk behind 30"	7	1	default	35						
Excavator 320	7	1	172	35	0	0	13	16	17	16
Excavator 336	7	2	311	35						
Excavator Mini 303	7	1	23.6	35						
Loader 950	7	3	250	35						
Office Generator	7	1	default	35						
Toe Behind Welders-400-500 amps	7	4	default	35						
Stages 7 through 12: Structures and earthwork. Date: Nov-23 to May-24										
12000 Manitowoc Crane	7	1	285	136						
12K Forklift	7	1	130	136						
14000 Manitowoc Crane	7	1	340	136						
18000 Manitowc Crane (Mar-May)	15	1	600	40						
Air Compressor 85CFM	7	1	default	136						
Compactor walk behind 30"	7	1	default	136						
Excavator 320	7	1	172	136	0	0	39	16	17	16
Excavator 336	7	2	311	136						
Excavator Mini 303	7	1	23.6	136						
Loader 950	7	3	250	136						
Office Generator	7	1	default	136						
Toe Behind Welders-400-500 amps	7	4	default	136						

Equipment Type	Hours/Day	Quantity	HP	Days of Use	Haul Trips		Vendor Trips		Worker Trips	
					One-way	miles/trip	One-way	miles/trip	One-way	miles/trip
Stage 13: Structures, curfew/switchout. Date: May-24 to Jun-24										
12000 Manitowoc Crane	7	1	285	31						
12K Forklift	7	1	130	31						
14000 Manitowoc Crane	7	1	340	31						
18000 Manitowc Crane (Mar-May)	15	1	600	20						
Air Compressor 85CFM	7	1	default	31						
Compactor walk behind 30"	7	1	default	31						
Excavator 320	7	1	172	31	0	0	21	16	17	16
Excavator 336	7	2	311	31						
Excavator Mini 303	7	1	23.6	31						
Light Plants (Apr-Jun)	8	16	default	50						
Loader 950	7	3	250	31						
Office Generator	7	1	default	31						
Toe Behind Welders-400-500 amps	7	4	default	31						
Stage 14: Demolition/disposal and site restoration. Date: Jun-24 to Oct-24										
12000 Manitowoc Crane	7	1	285	72						
12K Forklift	7	1	130	72						
14000 Manitowoc Crane	7	1	340	72						
Air Compressor 85CFM	7	1	default	72						
Excavator 320	7	1	172	72	438	0.17	12	16	17	16
Excavator 336	7	2	311	72						
Excavator Mini 303	7	1	23.6	72						
Loader 950	7	3	250	72						
Office Generator	7	1	default	72						

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Honda Bridge Replacement

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Parking	1.00	User Defined Unit	30.20	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.1	**Precipitation Freq (Days)**	37
Climate Zone	4			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - acreage from project descripion

Construction Phase - Phases, dates, and duration based on provided construction information

Off-road Equipment - Equiment and hours based on provided construction info, horsepower based on manufacturer data

Off-road Equipment - Phases, dates, and duration based on provided construction information

Off-road Equipment - Phases, dates, and duration based on provided construction information

Off-road Equipment - Phases, dates, and duration based on provided construction information

Off-road Equipment - Phases, dates, and duration based on provided construction information

Off-road Equipment - Phases, dates, and duration based on provided construction information

Off-road Equipment - Phases, dates, and duration based on provided construction information

Off-road Equipment - Phases, dates, and duration based on provided construction information

Trips and VMT - worker,vendor, hauling trips and lengths based on provided construction data

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Grading - material movement and graded acres based on provided construction data

Vehicle Trips - No Operational

Vehicle Emission Factors - No Operational

Vehicle Emission Factors - No Operational

Vehicle Emission Factors - No Operational

Road Dust - No Operational

Woodstoves - No Operational

Consumer Products - No Operational

Area Coating - No Operational

Landscape Equipment - No Operational

Energy Use - No Operational

Water And Wastewater - No Operational

Solid Waste - No Operational

Land Use Change - No Operational

Sequestration - No Operational

Construction Off-road Equipment Mitigation - soil stabalizer %50 reduction, 3 x water per day with %61 reduction and speed limit of 15mph

Operational Off-Road Equipment - No Operational

Fleet Mix - No Operational

Stationary Sources - Emergency Generators and Fire Pumps - No Operational

Stationary Sources - Process Boilers - No Operational

Stationary Sources - User Defined - No Operational

Stationary Sources - Emergency Generators and Fire Pumps EF - No Operational

Stationary Sources - Process Boilers EF - No Operational

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	500.00	20.00
tblConstructionPhase	NumDays	500.00	50.00
tblConstructionPhase	NumDays	500.00	35.00

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tblConstructionPhase	NumDays	500.00	136.00
tblConstructionPhase	NumDays	500.00	31.00
tblConstructionPhase	NumDays	500.00	72.00
tblConstructionPhase	NumDays	20.00	57.00
tblConstructionPhase	NumDays	20.00	31.00
tblGrading	MaterialExported	0.00	14,920.00
tblGrading	MaterialExported	0.00	7,260.00
tblLandUse	LotAcreage	0.00	30.20
tblOffRoadEquipment	HorsePower	231.00	285.00
tblOffRoadEquipment	HorsePower	231.00	340.00
tblOffRoadEquipment	HorsePower	231.00	285.00
tblOffRoadEquipment	HorsePower	231.00	340.00
tblOffRoadEquipment	HorsePower	231.00	285.00
tblOffRoadEquipment	HorsePower	231.00	340.00
tblOffRoadEquipment	HorsePower	231.00	285.00
tblOffRoadEquipment	HorsePower	231.00	340.00
tblOffRoadEquipment	HorsePower	231.00	600.00
tblOffRoadEquipment	HorsePower	231.00	285.00
tblOffRoadEquipment	HorsePower	231.00	340.00
tblOffRoadEquipment	HorsePower	231.00	600.00
tblOffRoadEquipment	HorsePower	231.00	285.00
tblOffRoadEquipment	HorsePower	231.00	340.00
tblOffRoadEquipment	HorsePower	89.00	130.00
tblOffRoadEquipment	HorsePower	89.00	130.00
tblOffRoadEquipment	HorsePower	89.00	130.00
tblOffRoadEquipment	HorsePower	89.00	130.00
tblOffRoadEquipment	HorsePower	89.00	130.00
tblOffRoadEquipment	HorsePower	89.00	130.00
tblOffRoadEquipment	HorsePower	247.00	215.00

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tblOffRoadEquipment	HorsePower	221.00	265.00
tblOffRoadEquipment	HorsePower	221.00	114.00
tblOffRoadEquipment	HorsePower	221.00	265.00
tblOffRoadEquipment	HorsePower	221.00	114.00
tblOffRoadEquipment	HorsePower	221.00	200.00
tblOffRoadEquipment	HorsePower	221.00	200.00
tblOffRoadEquipment	HorsePower	231.00	285.00
tblOffRoadEquipment	HorsePower	231.00	340.00
tblOffRoadEquipment	HorsePower	158.00	69.50
tblOffRoadEquipment	HorsePower	158.00	172.00
tblOffRoadEquipment	HorsePower	158.00	311.00
tblOffRoadEquipment	HorsePower	158.00	23.60
tblOffRoadEquipment	HorsePower	158.00	69.50
tblOffRoadEquipment	HorsePower	158.00	172.00
tblOffRoadEquipment	HorsePower	158.00	311.00
tblOffRoadEquipment	HorsePower	158.00	23.60
tblOffRoadEquipment	HorsePower	158.00	69.50
tblOffRoadEquipment	HorsePower	158.00	172.00
tblOffRoadEquipment	HorsePower	158.00	311.00
tblOffRoadEquipment	HorsePower	158.00	23.60
tblOffRoadEquipment	HorsePower	158.00	172.00
tblOffRoadEquipment	HorsePower	158.00	311.00
tblOffRoadEquipment	HorsePower	158.00	23.60
tblOffRoadEquipment	HorsePower	158.00	172.00
tblOffRoadEquipment	HorsePower	158.00	311.00
tblOffRoadEquipment	HorsePower	158.00	23.60
tblOffRoadEquipment	HorsePower	158.00	172.00
tblOffRoadEquipment	HorsePower	158.00	311.00
tblOffRoadEquipment	HorsePower	158.00	23.60

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	HorsePower	158.00	172.00
tblOffRoadEquipment	HorsePower	158.00	311.00
tblOffRoadEquipment	HorsePower	158.00	23.60
tblOffRoadEquipment	HorsePower	158.00	172.00
tblOffRoadEquipment	HorsePower	158.00	311.00
tblOffRoadEquipment	HorsePower	158.00	23.60
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	16.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	UsageHours	7.00	15.00
tblOffRoadEquipment	UsageHours	7.00	15.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
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tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblOffRoadEquipment	UsageHours	8.00	7.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.17
tblTripsAndVMT	HaulingTripLength	20.00	0.17

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tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.17
tblTripsAndVMT	HaulingTripNumber	1,865.00	292.00
tblTripsAndVMT	HaulingTripNumber	0.00	146.00
tblTripsAndVMT	VendorTripLength	6.40	16.00
tblTripsAndVMT	VendorTripLength	6.40	0.00
tblTripsAndVMT	VendorTripLength	6.40	16.00
tblTripsAndVMT	VendorTripLength	6.40	16.00
tblTripsAndVMT	VendorTripLength	6.40	16.00
tblTripsAndVMT	VendorTripLength	6.40	16.00
tblTripsAndVMT	VendorTripLength	6.40	16.00
tblTripsAndVMT	VendorTripLength	6.40	16.00
tblTripsAndVMT	VendorTripNumber	0.00	22.00
tblTripsAndVMT	VendorTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	13.00
tblTripsAndVMT	VendorTripNumber	0.00	13.00
tblTripsAndVMT	VendorTripNumber	0.00	49.00
tblTripsAndVMT	VendorTripNumber	0.00	21.00
tblTripsAndVMT	VendorTripNumber	0.00	112.00
tblTripsAndVMT	WorkerTripLength	8.30	16.00
tblTripsAndVMT	WorkerTripLength	8.30	16.00
tblTripsAndVMT	WorkerTripLength	8.30	16.00
tblTripsAndVMT	WorkerTripLength	8.30	16.00
tblTripsAndVMT	WorkerTripLength	8.30	16.00
tblTripsAndVMT	WorkerTripLength	8.30	16.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	WorkerTripLength	8.30	16.00
tblTripsAndVMT	WorkerTripLength	8.30	16.00
tblTripsAndVMT	WorkerTripNumber	58.00	16.00
tblTripsAndVMT	WorkerTripNumber	0.00	16.00
tblTripsAndVMT	WorkerTripNumber	0.00	16.00
tblTripsAndVMT	WorkerTripNumber	65.00	16.00
tblTripsAndVMT	WorkerTripNumber	0.00	16.00
tblTripsAndVMT	WorkerTripNumber	0.00	16.00
tblTripsAndVMT	WorkerTripNumber	0.00	16.00
tblTripsAndVMT	WorkerTripNumber	0.00	16.00

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.6280	5.8714	5.4177	0.0141	0.7022	0.2307	0.9330	0.3418	0.2156	0.5574	0.0000	1,235.7463	1,235.7463	0.3276	0.0153	1,248.4854
2024	0.5139	4.9886	4.9423	0.0145	0.1154	0.1786	0.2940	0.0329	0.1688	0.2017	0.0000	1,293.8311	1,293.8311	0.2644	0.0421	1,312.9838
Maximum	**0.6280**	**5.8714**	**5.4177**	**0.0145**	**0.7022**	**0.2307**	**0.9330**	**0.3418**	**0.2156**	**0.5574**	**0.0000**	**1,293.8311**	**1,293.8311**	**0.3276**	**0.0421**	**1,312.9838**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.6280	5.8714	5.4177	0.0141	0.3078	0.2307	0.5385	0.1428	0.2156	0.3584	0.0000	1,235.7450	1,235.7450	0.3276	0.0153	1,248.4841
2024	0.5139	4.9886	4.9423	0.0145	0.1154	0.1786	0.2940	0.0329	0.1688	0.2017	0.0000	1,293.8299	1,293.8299	0.2644	0.0421	1,312.9826
Maximum	**0.6280**	**5.8714**	**5.4177**	**0.0145**	**0.3078**	**0.2307**	**0.5385**	**0.1428**	**0.2156**	**0.3584**	**0.0000**	**1,293.8299**	**1,293.8299**	**0.3276**	**0.0421**	**1,312.9826**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**48.24**	**0.00**	**32.15**	**53.12**	**0.00**	**26.22**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**2-1-2023**	**4-30-2023**	1.5099	1.5099
2	**5-1-2023**	**7-31-2023**	1.9792	1.9792
3	**8-1-2023**	**10-31-2023**	1.7651	1.7651
4	**11-1-2023**	**1-31-2024**	1.8326	1.8326
5	**2-1-2024**	**4-30-2024**	1.7148	1.7148
6	**5-1-2024**	**7-31-2024**	2.1628	2.1628
7	**8-1-2024**	**9-30-2024**	0.9423	0.9423
		Highest	2.1628	2.1628

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Stage 1	Site Preparation	2/6/2023	4/25/2023	5	57	Access Road construction \Relocate utilities
2	Stage 2	Building Construction	4/26/2023	5/23/2023	5	20	Elevated work platform construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3	Stage 3	Building Construction	5/24/2023	8/1/2023	5	50	Finish constructing work pad/crane pad, shoring and deep foundations
4	Stage 4	Site Preparation	8/2/2023	9/13/2023	5	31	Access roads, deep foundations, shoring and earthwork
5	Stages 5 and 6	Building Construction	9/14/2023	11/1/2023	5	35	Structures and deep foundations
6	Stages 7 through 12	Building Construction	11/2/2023	5/9/2024	5	136	Structures and earthwork
7	Stage 13	Building Construction	5/10/2024	6/21/2024	5	31	structures, curfew/switchout
8	Stage 14	Building Construction	6/24/2024	10/1/2024	5	72	demolition/disposal and site restoration

Acres of Grading (Site Preparation Phase): 74.81

Acres of Grading (Grading Phase): 0

Acres of Paving: 30.2

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Stage 1	Aerial Lifts	4	7.00	63	0.31
Stage 1	Air Compressors	1	7.00	78	0.48
Stage 1	Excavators	1	7.00	69.5	0.38
Stage 1	Excavators	1	7.00	172	0.38
Stage 1	Excavators	2	7.00	311	0.38
Stage 1	Excavators	1	7.00	23.6	0.38
Stage 1	Generator Sets	1	7.00	84	0.74
Stage 1	Graders	1	7.00	238	0.41
Stage 1	Plate Compactors	1	7.00	157	0.43
Stage 1	Plate Compactors	1	7.00	8	0.43
Stage 1	Rubber Tired Dozers	2	7.00	215	0.40
Stage 1	Rubber Tired Loaders	3	7.00	250	0.36

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Stage 1	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Stage 2	Aerial Lifts	4	7.00	63	0.31
Stage 2	Air Compressors	1	7.00	78	0.48
Stage 2	Bore/Drill Rigs	1	7.00	265	0.50
Stage 2	Bore/Drill Rigs	1	7.00	114	0.50
Stage 2	Cranes	1	7.00	285	0.29
Stage 2	Cranes	1	7.00	340	0.29
Stage 2	Excavators	1	7.00	69.5	0.38
Stage 2	Excavators	1	7.00	172	0.38
Stage 2	Excavators	2	7.00	311	0.38
Stage 2	Excavators	1	7.00	23.6	0.38
Stage 2	Forklifts	1	7.00	130	0.20
Stage 2	Generator Sets	1	7.00	84	0.74
Stage 2	Plate Compactors	1	7.00	157	0.43
Stage 2	Plate Compactors	1	7.00	8	0.43
Stage 2	Rubber Tired Dozers	2	7.00	215	0.40
Stage 2	Rubber Tired Loaders	3	7.00	250	0.36
Stage 2	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Stage 2	Welders	4	7.00	46	0.45
Stage 3	Aerial Lifts	4	7.00	63	0.31
Stage 3	Air Compressors	1	7.00	78	0.48
Stage 3	Bore/Drill Rigs	1	7.00	265	0.50
Stage 3	Bore/Drill Rigs	1	7.00	114	0.50
Stage 3	Bore/Drill Rigs	1	7.00	200	0.50
Stage 3	Cranes	1	7.00	285	0.29
Stage 3	Cranes	1	7.00	340	0.29
Stage 3	Excavators	1	7.00	69.5	0.38
Stage 3	Excavators	1	7.00	172	0.38
Stage 3	Excavators	2	7.00	311	0.38

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Stage 3	Excavators	1	7.00	23.6	0.38
Stage 3	Forklifts	1	7.00	130	0.20
Stage 3	Generator Sets	1	7.00	84	0.74
Stage 3	Plate Compactors	1	7.00	157	0.43
Stage 3	Plate Compactors	1	7.00	8	0.43
Stage 3	Rubber Tired Dozers	2	7.00	215	0.40
Stage 3	Rubber Tired Loaders	3	7.00	250	0.36
Stage 3	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Stage 3	Welders	4	7.00	46	0.45
Stage 4	Air Compressors	1	7.00	78	0.48
Stage 4	Bore/Drill Rigs	1	7.00	200	0.50
Stage 4	Cranes	1	7.00	285	0.29
Stage 4	Cranes	1	7.00	340	0.29
Stage 4	Excavators	1	7.00	172	0.38
Stage 4	Excavators	2	7.00	311	0.38
Stage 4	Excavators	1	7.00	23.6	0.38
Stage 4	Forklifts	1	7.00	130	0.20
Stage 4	Generator Sets	1	7.00	84	0.74
Stage 4	Plate Compactors	1	7.00	157	0.43
Stage 4	Plate Compactors	1	7.00	8	0.43
Stage 4	Rubber Tired Dozers	3	8.00	247	0.40
Stage 4	Rubber Tired Loaders	3	7.00	250	0.36
Stage 4	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Stage 4	Welders	4	7.00	46	0.45
Stages 5 and 6	Air Compressors	1	7.00	78	0.48
Stages 5 and 6	Cranes	1	7.00	285	0.29
Stages 5 and 6	Cranes	1	7.00	340	0.29
Stages 5 and 6	Excavators	1	7.00	172	0.38
Stages 5 and 6	Excavators	2	7.00	311	0.38

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Stages 5 and 6	Excavators	1	7.00	23.6	0.38
Stages 5 and 6	Forklifts	1	7.00	130	0.20
Stages 5 and 6	Generator Sets	1	7.00	84	0.74
Stages 5 and 6	Plate Compactors	1	7.00	157	0.43
Stages 5 and 6	Plate Compactors	1	7.00	8	0.43
Stages 5 and 6	Rubber Tired Loaders	3	7.00	250	0.36
Stages 5 and 6	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Stages 5 and 6	Welders	4	7.00	46	0.45
Stages 7 through 12	Air Compressors	1	7.00	78	0.48
Stages 7 through 12	Cranes	1	7.00	285	0.29
Stages 7 through 12	Cranes	1	7.00	340	0.29
Stages 7 through 12	Cranes	1	15.00	600	0.29
Stages 7 through 12	Excavators	1	7.00	172	0.38
Stages 7 through 12	Excavators	2	7.00	311	0.38
Stages 7 through 12	Excavators	1	7.00	23.6	0.38
Stages 7 through 12	Forklifts	1	7.00	130	0.20
Stages 7 through 12	Generator Sets	1	7.00	84	0.74
Stages 7 through 12	Plate Compactors	1	7.00	8	0.43
Stages 7 through 12	Rubber Tired Loaders	3	7.00	250	0.36
Stages 7 through 12	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Stages 7 through 12	Welders	4	7.00	46	0.45
Stage 13	Air Compressors	1	7.00	78	0.48
Stage 13	Cranes	1	7.00	285	0.29
Stage 13	Cranes	1	7.00	340	0.29
Stage 13	Cranes	1	15.00	600	0.29
Stage 13	Excavators	1	7.00	172	0.38
Stage 13	Excavators	2	7.00	311	0.38
Stage 13	Excavators	1	7.00	23.6	0.38
Stage 13	Forklifts	1	7.00	130	0.20

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Stage 13	Generator Sets	1	7.00	84	0.74
Stage 13	Generator Sets	16	8.00	84	0.74
Stage 13	Plate Compactors	1	7.00	8	0.43
Stage 13	Rubber Tired Loaders	3	7.00	250	0.36
Stage 13	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Stage 13	Welders	1	7.00	46	0.45
Stage 14	Air Compressors	1	7.00	78	0.48
Stage 14	Cranes	1	7.00	285	0.29
Stage 14	Cranes	1	7.00	340	0.29
Stage 14	Excavators	1	7.00	172	0.38
Stage 14	Excavators	2	7.00	311	0.38
Stage 14	Excavators	1	7.00	23.6	0.38
Stage 14	Forklifts	1	7.00	130	0.20
Stage 14	Generator Sets	1	7.00	84	0.74
Stage 14	Rubber Tired Loaders	3	7.00	250	0.36
Stage 14	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Stage 14	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Stage 1	23	16.00	22.00	292.00	16.00	16.00	0.17	LD_Mix	HDT_Mix	HHDT
Stage 2	30	16.00	0.00	146.00	16.00	0.00	0.17	LD_Mix	HDT_Mix	HHDT
Stage 3	31	16.00	8.00	0.00	16.00	16.00	0.00	LD_Mix	HDT_Mix	HHDT
Stage 4	26	16.00	13.00	908.00	16.00	16.00	0.00	LD_Mix	HDT_Mix	HHDT
Stages 5 and 6	21	16.00	13.00	0.00	16.00	16.00	0.00	LD_Mix	HDT_Mix	HHDT
Stages 7 through 12	21	16.00	49.00	0.00	16.00	16.00	0.00	LD_Mix	HDT_Mix	HHDT
Stage 13	34	16.00	21.00	0.00	16.00	16.00	0.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Stage 14	16	16.00	112.00	0.00	16.00	16.00	0.17	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Stage 1 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3413	0.0000	0.3413	0.1696	0.0000	0.1696	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1247	1.2234	1.1017	2.6800e-003		0.0493	0.0493		0.0459	0.0459	0.0000	234.2558	234.2558	0.0694	0.0000	235.9912
Total	**0.1247**	**1.2234**	**1.1017**	**2.6800e-003**	**0.3413**	**0.0493**	**0.3907**	**0.1696**	**0.0459**	**0.2154**	**0.0000**	**234.2558**	**234.2558**	**0.0694**	**0.0000**	**235.9912**

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3.2 Stage 1 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3000e-004	2.7700e-003	1.9200e-003	0.0000	2.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.4076	0.4076	2.0000e-005	6.0000e-005	0.4273
Vendor	1.4500e-003	0.0654	0.0177	2.7000e-004	9.1000e-003	4.3000e-004	9.5300e-003	2.6200e-003	4.1000e-004	3.0300e-003	0.0000	27.1747	27.1747	1.1300e-003	3.9800e-003	28.3902
Worker	1.7200e-003	1.3700e-003	0.0148	4.0000e-005	5.4300e-003	3.0000e-005	5.4500e-003	1.4400e-003	2.0000e-005	1.4600e-003	0.0000	4.0595	4.0595	1.1000e-004	1.2000e-004	4.0973
Total	**3.3000e-003**	**0.0695**	**0.0343**	**3.1000e-004**	**0.0146**	**4.6000e-004**	**0.0150**	**4.0700e-003**	**4.3000e-004**	**4.5000e-003**	**0.0000**	**31.6417**	**31.6417**	**1.2600e-003**	**4.1600e-003**	**32.9148**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1331	0.0000	0.1331	0.0661	0.0000	0.0661	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1247	1.2234	1.1017	2.6800e-003		0.0493	0.0493		0.0459	0.0459	0.0000	234.2555	234.2555	0.0694	0.0000	235.9909
Total	**0.1247**	**1.2234**	**1.1017**	**2.6800e-003**	**0.1331**	**0.0493**	**0.1825**	**0.0661**	**0.0459**	**0.1120**	**0.0000**	**234.2555**	**234.2555**	**0.0694**	**0.0000**	**235.9909**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Stage 1 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3000e-004	2.7700e-003	1.9200e-003	0.0000	2.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.4076	0.4076	2.0000e-005	6.0000e-005	0.4273
Vendor	1.4500e-003	0.0654	0.0177	2.7000e-004	9.1000e-003	4.3000e-004	9.5300e-003	2.6200e-003	4.1000e-004	3.0300e-003	0.0000	27.1747	27.1747	1.1300e-003	3.9800e-003	28.3902
Worker	1.7200e-003	1.3700e-003	0.0148	4.0000e-005	5.4300e-003	3.0000e-005	5.4500e-003	1.4400e-003	2.0000e-005	1.4600e-003	0.0000	4.0595	4.0595	1.1000e-004	1.2000e-004	4.0973
Total	**3.3000e-003**	**0.0695**	**0.0343**	**3.1000e-004**	**0.0146**	**4.6000e-004**	**0.0150**	**4.0700e-003**	**4.3000e-004**	**4.5000e-003**	**0.0000**	**31.6417**	**31.6417**	**1.2600e-003**	**4.1600e-003**	**32.9148**

3.3 Stage 2 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0576	0.5238	0.5136	1.2100e-003		0.0213	0.0213		0.0199	0.0199	0.0000	104.5379	104.5379	0.0302	0.0000	105.2922
Total	**0.0576**	**0.5238**	**0.5136**	**1.2100e-003**		**0.0213**	**0.0213**		**0.0199**	**0.0199**	**0.0000**	**104.5379**	**104.5379**	**0.0302**	**0.0000**	**105.2922**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Stage 2 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	1.3900e-003	9.6000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.2038	0.2038	1.0000e-005	3.0000e-005	0.2137
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.8000e-004	5.1700e-003	2.0000e-005	1.9000e-003	1.0000e-005	1.9100e-003	5.1000e-004	1.0000e-005	5.1000e-004	0.0000	1.4244	1.4244	4.0000e-005	4.0000e-005	1.4377
Total	**6.6000e-004**	**1.8700e-003**	**6.1300e-003**	**2.0000e-005**	**1.9100e-003**	**1.0000e-005**	**1.9200e-003**	**5.1000e-004**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**1.6282**	**1.6282**	**5.0000e-005**	**7.0000e-005**	**1.6513**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0576	0.5238	0.5136	1.2100e-003		0.0213	0.0213		0.0199	0.0199	0.0000	104.5378	104.5378	0.0302	0.0000	105.2921
Total	**0.0576**	**0.5238**	**0.5136**	**1.2100e-003**		**0.0213**	**0.0213**		**0.0199**	**0.0199**	**0.0000**	**104.5378**	**104.5378**	**0.0302**	**0.0000**	**105.2921**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Stage 2 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	1.3900e-003	9.6000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.2038	0.2038	1.0000e-005	3.0000e-005	0.2137
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	4.8000e-004	5.1700e-003	2.0000e-005	1.9000e-003	1.0000e-005	1.9100e-003	5.1000e-004	1.0000e-005	5.1000e-004	0.0000	1.4244	1.4244	4.0000e-005	4.0000e-005	1.4377
Total	**6.6000e-004**	**1.8700e-003**	**6.1300e-003**	**2.0000e-005**	**1.9100e-003**	**1.0000e-005**	**1.9200e-003**	**5.1000e-004**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**1.6282**	**1.6282**	**5.0000e-005**	**7.0000e-005**	**1.6513**

3.4 Stage 3 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1483	1.3500	1.3243	3.2100e-003		0.0546	0.0546		0.0510	0.0510	0.0000	277.7845	277.7845	0.0807	0.0000	279.8031
Total	**0.1483**	**1.3500**	**1.3243**	**3.2100e-003**		**0.0546**	**0.0546**		**0.0510**	**0.0510**	**0.0000**	**277.7845**	**277.7845**	**0.0807**	**0.0000**	**279.8031**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Stage 3 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.6000e-004	0.0209	5.6300e-003	9.0000e-005	2.9000e-003	1.4000e-004	3.0400e-003	8.4000e-004	1.3000e-004	9.7000e-004	0.0000	8.6682	8.6682	3.6000e-004	1.2700e-003	9.0559
Worker	1.5100e-003	1.2100e-003	0.0129	4.0000e-005	4.7600e-003	2.0000e-005	4.7800e-003	1.2600e-003	2.0000e-005	1.2800e-003	0.0000	3.5610	3.5610	9.0000e-005	1.0000e-004	3.5941
Total	**1.9700e-003**	**0.0221**	**0.0186**	**1.3000e-004**	**7.6600e-003**	**1.6000e-004**	**7.8200e-003**	**2.1000e-003**	**1.5000e-004**	**2.2500e-003**	**0.0000**	**12.2291**	**12.2291**	**4.5000e-004**	**1.3700e-003**	**12.6500**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1483	1.3500	1.3243	3.2100e-003		0.0546	0.0546		0.0510	0.0510	0.0000	277.7842	277.7842	0.0807	0.0000	279.8028
Total	**0.1483**	**1.3500**	**1.3243**	**3.2100e-003**		**0.0546**	**0.0546**		**0.0510**	**0.0510**	**0.0000**	**277.7842**	**277.7842**	**0.0807**	**0.0000**	**279.8028**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Stage 3 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.6000e-004	0.0209	5.6300e-003	9.0000e-005	2.9000e-003	1.4000e-004	3.0400e-003	8.4000e-004	1.3000e-004	9.7000e-004	0.0000	8.6682	8.6682	3.6000e-004	1.2700e-003	9.0559
Worker	1.5100e-003	1.2100e-003	0.0129	4.0000e-005	4.7600e-003	2.0000e-005	4.7800e-003	1.2600e-003	2.0000e-005	1.2800e-003	0.0000	3.5610	3.5610	9.0000e-005	1.0000e-004	3.5941
Total	**1.9700e-003**	**0.0221**	**0.0186**	**1.3000e-004**	**7.6600e-003**	**1.6000e-004**	**7.8200e-003**	**2.1000e-003**	**1.5000e-004**	**2.2500e-003**	**0.0000**	**12.2291**	**12.2291**	**4.5000e-004**	**1.3700e-003**	**12.6500**

3.5 Stage 4 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3053	0.0000	0.3053	0.1567	0.0000	0.1567	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1018	0.9284	0.7831	1.9100e-003		0.0392	0.0392		0.0366	0.0366	0.0000	165.5212	165.5212	0.0479	0.0000	166.7185
Total	**0.1018**	**0.9284**	**0.7831**	**1.9100e-003**	**0.3053**	**0.0392**	**0.3446**	**0.1567**	**0.0366**	**0.1933**	**0.0000**	**165.5212**	**165.5212**	**0.0479**	**0.0000**	**166.7185**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Stage 4 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.9000e-004	8.0400e-003	5.8700e-003	1.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	1.0000e-005	1.0000e-005	0.0000	1.0361	1.0361	4.0000e-005	1.6000e-004	1.0860
Vendor	4.7000e-004	0.0210	5.6700e-003	9.0000e-005	2.9200e-003	1.4000e-004	3.0600e-003	8.4000e-004	1.3000e-004	9.8000e-004	0.0000	8.7332	8.7332	3.6000e-004	1.2800e-003	9.1238
Worker	9.4000e-004	7.5000e-004	8.0200e-003	2.0000e-005	2.9500e-003	1.0000e-005	2.9600e-003	7.8000e-004	1.0000e-005	8.0000e-004	0.0000	2.2078	2.2078	6.0000e-005	6.0000e-005	2.2284
Total	**1.8000e-003**	**0.0298**	**0.0196**	**1.2000e-004**	**5.8800e-003**	**1.6000e-004**	**6.0400e-003**	**1.6200e-003**	**1.5000e-004**	**1.7900e-003**	**0.0000**	**11.9770**	**11.9770**	**4.6000e-004**	**1.5000e-003**	**12.4382**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1191	0.0000	0.1191	0.0611	0.0000	0.0611	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1018	0.9284	0.7831	1.9100e-003		0.0392	0.0392		0.0366	0.0366	0.0000	165.5210	165.5210	0.0479	0.0000	166.7183
Total	**0.1018**	**0.9284**	**0.7831**	**1.9100e-003**	**0.1191**	**0.0392**	**0.1583**	**0.0611**	**0.0366**	**0.0977**	**0.0000**	**165.5210**	**165.5210**	**0.0479**	**0.0000**	**166.7183**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Stage 4 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.9000e-004	8.0400e-003	5.8700e-003	1.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	1.0000e-005	1.0000e-005	0.0000	1.0361	1.0361	4.0000e-005	1.6000e-004	1.0860
Vendor	4.7000e-004	0.0210	5.6700e-003	9.0000e-005	2.9200e-003	1.4000e-004	3.0600e-003	8.4000e-004	1.3000e-004	9.8000e-004	0.0000	8.7332	8.7332	3.6000e-004	1.2800e-003	9.1238
Worker	9.4000e-004	7.5000e-004	8.0200e-003	2.0000e-005	2.9500e-003	1.0000e-005	2.9600e-003	7.8000e-004	1.0000e-005	8.0000e-004	0.0000	2.2078	2.2078	6.0000e-005	6.0000e-005	2.2284
Total	**1.8000e-003**	**0.0298**	**0.0196**	**1.2000e-004**	**5.8800e-003**	**1.6000e-004**	**6.0400e-003**	**1.6200e-003**	**1.5000e-004**	**1.7900e-003**	**0.0000**	**11.9770**	**11.9770**	**4.6000e-004**	**1.5000e-003**	**12.4382**

3.6 Stages 5 and 6 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0723	0.6088	0.6392	1.5000e-003		0.0247	0.0247		0.0233	0.0233	0.0000	129.4001	129.4001	0.0355	0.0000	130.2872
Total	**0.0723**	**0.6088**	**0.6392**	**1.5000e-003**		**0.0247**	**0.0247**		**0.0233**	**0.0233**	**0.0000**	**129.4001**	**129.4001**	**0.0355**	**0.0000**	**130.2872**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Stages 5 and 6 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.3000e-004	0.0237	6.4000e-003	1.0000e-004	3.3000e-003	1.6000e-004	3.4600e-003	9.5000e-004	1.5000e-004	1.1000e-003	0.0000	9.8600	9.8600	4.1000e-004	1.4500e-003	10.3011
Worker	1.0600e-003	8.4000e-004	9.0500e-003	3.0000e-005	3.3300e-003	2.0000e-005	3.3500e-003	8.8000e-004	1.0000e-005	9.0000e-004	0.0000	2.4927	2.4927	6.0000e-005	7.0000e-005	2.5159
Total	**1.5900e-003**	**0.0246**	**0.0155**	**1.3000e-004**	**6.6300e-003**	**1.8000e-004**	**6.8100e-003**	**1.8300e-003**	**1.6000e-004**	**2.0000e-003**	**0.0000**	**12.3527**	**12.3527**	**4.7000e-004**	**1.5200e-003**	**12.8170**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0723	0.6088	0.6392	1.5000e-003		0.0247	0.0247		0.0233	0.0233	0.0000	129.4000	129.4000	0.0355	0.0000	130.2870
Total	**0.0723**	**0.6088**	**0.6392**	**1.5000e-003**		**0.0247**	**0.0247**		**0.0233**	**0.0233**	**0.0000**	**129.4000**	**129.4000**	**0.0355**	**0.0000**	**130.2870**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Stages 5 and 6 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.3000e-004	0.0237	6.4000e-003	1.0000e-004	3.3000e-003	1.6000e-004	3.4600e-003	9.5000e-004	1.5000e-004	1.1000e-003	0.0000	9.8600	9.8600	4.1000e-004	1.4500e-003	10.3011
Worker	1.0600e-003	8.4000e-004	9.0500e-003	3.0000e-005	3.3300e-003	2.0000e-005	3.3500e-003	8.8000e-004	1.0000e-005	9.0000e-004	0.0000	2.4927	2.4927	6.0000e-005	7.0000e-005	2.5159
Total	**1.5900e-003**	**0.0246**	**0.0155**	**1.3000e-004**	**6.6300e-003**	**1.8000e-004**	**6.8100e-003**	**1.8300e-003**	**1.6000e-004**	**2.0000e-003**	**0.0000**	**12.3527**	**12.3527**	**4.7000e-004**	**1.5200e-003**	**12.8170**

3.7 Stages 7 through 12 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1104	0.9810	0.9219	2.3900e-003		0.0398	0.0398		0.0373	0.0373	0.0000	206.8291	206.8291	0.0593	0.0000	208.3103
Total	**0.1104**	**0.9810**	**0.9219**	**2.3900e-003**		**0.0398**	**0.0398**		**0.0373**	**0.0373**	**0.0000**	**206.8291**	**206.8291**	**0.0593**	**0.0000**	**208.3103**

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3.7 Stages 7 through 12 - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3800e-003	0.1073	0.0290	4.5000e-004	0.0149	7.1000e-004	0.0156	4.3100e-003	6.8000e-004	4.9800e-003	0.0000	44.5977	44.5977	1.8500e-003	6.5400e-003	46.5926
Worker	1.2700e-003	1.0100e-003	0.0109	3.0000e-005	4.0000e-003	2.0000e-005	4.0200e-003	1.0600e-003	2.0000e-005	1.0800e-003	0.0000	2.9912	2.9912	8.0000e-005	9.0000e-005	3.0191
Total	**3.6500e-003**	**0.1083**	**0.0398**	**4.8000e-004**	**0.0189**	**7.3000e-004**	**0.0197**	**5.3700e-003**	**7.0000e-004**	**6.0600e-003**	**0.0000**	**47.5889**	**47.5889**	**1.9300e-003**	**6.6300e-003**	**49.6116**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1104	0.9810	0.9219	2.3900e-003		0.0398	0.0398		0.0373	0.0373	0.0000	206.8288	206.8288	0.0593	0.0000	208.3101
Total	**0.1104**	**0.9810**	**0.9219**	**2.3900e-003**		**0.0398**	**0.0398**		**0.0373**	**0.0373**	**0.0000**	**206.8288**	**206.8288**	**0.0593**	**0.0000**	**208.3101**

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3.7 Stages 7 through 12 - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3800e-003	0.1073	0.0290	4.5000e-004	0.0149	7.1000e-004	0.0156	4.3100e-003	6.8000e-004	4.9800e-003	0.0000	44.5977	44.5977	1.8500e-003	6.5400e-003	46.5926
Worker	1.2700e-003	1.0100e-003	0.0109	3.0000e-005	4.0000e-003	2.0000e-005	4.0200e-003	1.0600e-003	2.0000e-005	1.0800e-003	0.0000	2.9912	2.9912	8.0000e-005	9.0000e-005	3.0191
Total	**3.6500e-003**	**0.1083**	**0.0398**	**4.8000e-004**	**0.0189**	**7.3000e-004**	**0.0197**	**5.3700e-003**	**7.0000e-004**	**6.0600e-003**	**0.0000**	**47.5889**	**47.5889**	**1.9300e-003**	**6.6300e-003**	**49.6116**

3.7 Stages 7 through 12 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2360	2.0310	2.0499	5.3500e-003		0.0809	0.0809		0.0757	0.0757	0.0000	462.8923	462.8923	0.1323	0.0000	466.1987
Total	**0.2360**	**2.0310**	**2.0499**	**5.3500e-003**		**0.0809**	**0.0809**		**0.0757**	**0.0757**	**0.0000**	**462.8923**	**462.8923**	**0.1323**	**0.0000**	**466.1987**

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3.7 Stages 7 through 12 - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0400e-003	0.2347	0.0624	9.8000e-004	0.0334	1.5500e-003	0.0350	9.6400e-003	1.4800e-003	0.0111	0.0000	98.1759	98.1759	4.3000e-003	0.0144	102.5814
Worker	2.6600e-003	2.0000e-003	0.0224	7.0000e-005	8.9500e-003	4.0000e-005	8.9900e-003	2.3800e-003	4.0000e-005	2.4100e-003	0.0000	6.4843	6.4843	1.6000e-004	1.8000e-004	6.5417
Total	**7.7000e-003**	**0.2367**	**0.0849**	**1.0500e-003**	**0.0424**	**1.5900e-003**	**0.0440**	**0.0120**	**1.5200e-003**	**0.0135**	**0.0000**	**104.6601**	**104.6601**	**4.4600e-003**	**0.0146**	**109.1231**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2360	2.0310	2.0499	5.3500e-003		0.0809	0.0809		0.0757	0.0757	0.0000	462.8917	462.8917	0.1323	0.0000	466.1981
Total	**0.2360**	**2.0310**	**2.0499**	**5.3500e-003**		**0.0809**	**0.0809**		**0.0757**	**0.0757**	**0.0000**	**462.8917**	**462.8917**	**0.1323**	**0.0000**	**466.1981**

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3.7 Stages 7 through 12 - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.0400e-003	0.2347	0.0624	9.8000e-004	0.0334	1.5500e-003	0.0350	9.6400e-003	1.4800e-003	0.0111	0.0000	98.1759	98.1759	4.3000e-003	0.0144	102.5814
Worker	2.6600e-003	2.0000e-003	0.0224	7.0000e-005	8.9500e-003	4.0000e-005	8.9900e-003	2.3800e-003	4.0000e-005	2.4100e-003	0.0000	6.4843	6.4843	1.6000e-004	1.8000e-004	6.5417
Total	**7.7000e-003**	**0.2367**	**0.0849**	**1.0500e-003**	**0.0424**	**1.5900e-003**	**0.0440**	**0.0120**	**1.5200e-003**	**0.0135**	**0.0000**	**104.6601**	**104.6601**	**4.4600e-003**	**0.0146**	**109.1231**

3.8 Stage 13 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1389	1.2447	1.5170	3.2900e-003		0.0522	0.0522		0.0505	0.0505	0.0000	285.1692	285.1692	0.0485	0.0000	286.3819
Total	**0.1389**	**1.2447**	**1.5170**	**3.2900e-003**		**0.0522**	**0.0522**		**0.0505**	**0.0505**	**0.0000**	**285.1692**	**285.1692**	**0.0485**	**0.0000**	**286.3819**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Stage 13 - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.1000e-004	0.0332	8.8200e-003	1.4000e-004	4.7200e-003	2.2000e-004	4.9400e-003	1.3600e-003	2.1000e-004	1.5700e-003	0.0000	13.8759	13.8759	6.1000e-004	2.0400e-003	14.4986
Worker	8.8000e-004	6.6000e-004	7.4000e-003	2.0000e-005	2.9500e-003	1.0000e-005	2.9600e-003	7.8000e-004	1.0000e-005	8.0000e-004	0.0000	2.1384	2.1384	5.0000e-005	6.0000e-005	2.1574
Total	**1.5900e-003**	**0.0338**	**0.0162**	**1.6000e-004**	**7.6700e-003**	**2.3000e-004**	**7.9000e-003**	**2.1400e-003**	**2.2000e-004**	**2.3700e-003**	**0.0000**	**16.0144**	**16.0144**	**6.6000e-004**	**2.1000e-003**	**16.6560**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1389	1.2447	1.5170	3.2900e-003		0.0522	0.0522		0.0505	0.0505	0.0000	285.1688	285.1688	0.0485	0.0000	286.3815
Total	**0.1389**	**1.2447**	**1.5170**	**3.2900e-003**		**0.0522**	**0.0522**		**0.0505**	**0.0505**	**0.0000**	**285.1688**	**285.1688**	**0.0485**	**0.0000**	**286.3815**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Stage 13 - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.1000e-004	0.0332	8.8200e-003	1.4000e-004	4.7200e-003	2.2000e-004	4.9400e-003	1.3600e-003	2.1000e-004	1.5700e-003	0.0000	13.8759	13.8759	6.1000e-004	2.0400e-003	14.4986
Worker	8.8000e-004	6.6000e-004	7.4000e-003	2.0000e-005	2.9500e-003	1.0000e-005	2.9600e-003	7.8000e-004	1.0000e-005	8.0000e-004	0.0000	2.1384	2.1384	5.0000e-005	6.0000e-005	2.1574
Total	**1.5900e-003**	**0.0338**	**0.0162**	**1.6000e-004**	**7.6700e-003**	**2.3000e-004**	**7.9000e-003**	**2.1400e-003**	**2.2000e-004**	**2.3700e-003**	**0.0000**	**16.0144**	**16.0144**	**6.6000e-004**	**2.1000e-003**	**16.6560**

3.9 Stage 14 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1188	1.0300	1.1479	2.8500e-003		0.0409	0.0409		0.0383	0.0383	0.0000	248.2461	248.2461	0.0709	0.0000	250.0183
Total	**0.1188**	**1.0300**	**1.1479**	**2.8500e-003**		**0.0409**	**0.0409**		**0.0383**	**0.0383**	**0.0000**	**248.2461**	**248.2461**	**0.0709**	**0.0000**	**250.0183**

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3.9 Stage 14 - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.8200e-003	0.4109	0.1093	1.7200e-003	0.0585	2.7100e-003	0.0612	0.0169	2.6000e-003	0.0195	0.0000	171.8824	171.8824	7.5300e-003	0.0253	179.5953
Worker	2.0400e-003	1.5300e-003	0.0172	5.0000e-005	6.8500e-003	3.0000e-005	6.8800e-003	1.8200e-003	3.0000e-005	1.8500e-003	0.0000	4.9667	4.9667	1.2000e-004	1.4000e-004	5.0107
Total	**0.0109**	**0.4124**	**0.1265**	**1.7700e-003**	**0.0654**	**2.7400e-003**	**0.0681**	**0.0187**	**2.6300e-003**	**0.0213**	**0.0000**	**176.8491**	**176.8491**	**7.6500e-003**	**0.0254**	**184.6060**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1188	1.0299	1.1479	2.8500e-003		0.0409	0.0409		0.0383	0.0383	0.0000	248.2458	248.2458	0.0709	0.0000	250.0180
Total	**0.1188**	**1.0299**	**1.1479**	**2.8500e-003**		**0.0409**	**0.0409**		**0.0383**	**0.0383**	**0.0000**	**248.2458**	**248.2458**	**0.0709**	**0.0000**	**250.0180**

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3.9 Stage 14 - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.8200e-003	0.4109	0.1093	1.7200e-003	0.0585	2.7100e-003	0.0612	0.0169	2.6000e-003	0.0195	0.0000	171.8824	171.8824	7.5300e-003	0.0253	179.5953
Worker	2.0400e-003	1.5300e-003	0.0172	5.0000e-005	6.8500e-003	3.0000e-005	6.8800e-003	1.8200e-003	3.0000e-005	1.8500e-003	0.0000	4.9667	4.9667	1.2000e-004	1.4000e-004	5.0107
Total	**0.0109**	**0.4124**	**0.1265**	**1.7700e-003**	**0.0654**	**2.7400e-003**	**0.0681**	**0.0187**	**2.6300e-003**	**0.0213**	**0.0000**	**176.8491**	**176.8491**	**7.6500e-003**	**0.0254**	**184.6060**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Parking	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Parking	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Parking	0.499590	0.054528	0.207373	0.147926	0.027658	0.006798	0.011091	0.006226	0.000954	0.000578	0.029982	0.003446	0.003849

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Honda Bridge Replacement - Santa Barbara-North of Santa Ynez County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Honda Bridge Replacement - Santa Barbara-North of Santa Ynez County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

Honda Bridge Replacement - Santa Barbara-North of Santa Ynez County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

Honda Bridge Replacement - Santa Barbara-North of Santa Ynez County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Honda Bridge Replacement - Santa Barbara-North of Santa Ynez County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Parking	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Parking	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

Honda Bridge Replacement - Santa Barbara-North of Santa Ynez County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: VANDENBERG AFB
State: California
County(s): Santa Barbara
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: La Canada Honda Bridge Replacement Project, UPRR Santa Barbara Subdivision Milepost 304.88

c. Project Number/s (if applicable):

d. Projected Action Start Date: 2 / 2023

e. Action Description:

Proposed Action
This section describes Alternative A as the Proposed Action. The Proposed Action Area totals approximately 30.2 acres and is divided into four Project components: (1) bridge replacement, (2) construction and temporary staging (17.3 acres), (3) fiber optic relocation and replacement (2.6 acres), and (4) wetland/waters restoration (up to 2.0 acres) and potential watershed enhancement (up to 10.3 acres) for mitigation.

Bridge Replacement
The Proposed Action includes removal of the existing 541-foot La Cañada Honda Bridge deck and steel towers located at the mouth of Honda Canyon on South VSFB in Santa Barbara County, California. The new bridge is projected to be 581 feet in length, with the deck supported by five new cast-in-place concrete columns (7-feet diameter) with concrete pier caps (columns and pier caps are a maximum of 95 feet high), anchored by below-ground steel piles and casing. The steel piles and casing would be covered by cast-in-place concrete pile caps that are 14-feet wide and range in length and depth according to Pier number.

Bridge Construction and Temporary Staging
To support Honda Bridge replacement, Project construction activities would require access improvements and temporary staging areas on UPRR and VSFB property. Temporary staging areas would total approximately 17.3 acres.

Fiber Optic Relocation and Replacement
An existing fiber optic line is located along UPRR property and would be temporarily relocated prior to start of bridge construction. Temporary re-location of the fiber optic lines would require the lines to be cut and re-routed 5,215 feet (~1-mile) above-ground within protective conduit except at driveway crossings where lines would be temporarily buried along the west shoulder of Coast Road. Additional mowing would impact an approximately 6-foot-wide strip (approximately 0.6-acre) along the western shoulder of Coast Road where there are no existing guard rails.The temporary reroute would also require two jack and bore pits to reroute fiber on the coast-side of the track: one adjacent to the track at Honda Station and one approximately 25 x 15 feet and 7 feet deep. Additionally, a new permanent hand hole would be placed at the Honda Station jack and bore pit to allow fiber carrier access. On the inland side of the tracks, within the bounds of Honda Station, shallow trenching would be necessary along the historic trench alignment to connect temporary fiber lines at the intersection of the reroute location by Access 6.

Upon bridge project completion, replacement fiber optic lines would be routed through the existing hand holes. The new fiber optic conduit and cables would be replaced from MP 299 at the northern extent through MP 307 at the southern extent (7 miles of new fiber optic cable). Minimal ground disturbance would occur at existing

hand hole locations and access trails (Figure 2-1b). However, additional excavations (approximately 3 x 5 feet and up to 5 feet deep) may be required between hand holes on both sides of the track to expose conduit in potential problem areas, all of which would occur along the historic trench alignment. replacement would account for an additional 0.6-acre portion of the Action Area for 34 hand hole locations and truck/trail access routes from Coast Road.

Potential Mitigation Sites
Upon Project completion all temporary cut/fill material would be replaced/removed, and all temporarily disturbed areas in the lower construction work area would be stabilized with native vegetation and restored, as needed. Future re-establishment/rehabilitation and wetland mitigation would occur in temporary construction areas including the girder staging area, crane pad, elevated work platform, sheet pile stream cutoff wall, and for VSFB's culvert repair access/staging area.

f. Point of Contact:

Name:	Kurt Legleiter
Title:	Principal
Organization:	AMBIENT Air Quality & Noise Consulting
Email:	kurt@ambient.consulting
Phone Number:	805.226.2727

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total net direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the start of the action through achieving "steady state" (i.e., net gain/loss upon action fully implemented) emissions. The ACAM analysis used the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in the USAF Air Emissions Guide for Air Force Stationary Sources, the USAF Air Emissions Guide for Air Force Mobile Sources, and the USAF Air Emissions Guide for Air Force Transitory Sources.

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of potential impacts to air quality based on current ambient air quality relative to the National Ambient Air Quality Standards (NAAQSs). These insignificance indicators are the 250 ton/yr Prevention of Significant Deterioration (PSD) major source threshold for actions occurring in areas that are "Clearly Attainment" (i.e., not within 5% of any NAAQS) and the GCR de minimis values (25 ton/yr for lead and 100 ton/yr for all other criteria pollutants) for actions occurring in areas that are "Near Nonattainment" (i.e., within 5% of any NAAQS). These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutant is considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQSs. For further detail on insignificance indicators see chapter 4 of the Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide, Volume II - Advanced Assessments.

The action's net emissions for every year through achieving steady state were compared against the Insignificance Indicator and are summarized below.

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

Analysis Summary:

2023

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.839	100	
NOx	4.858	100	
CO	5.848	250	
SOx	0.015	250	
PM 10	0.348	250	
PM 2.5	0.199	250	
Pb	0.000	25	No
NH3	0.005	250	
CO2e	1421.5		

2024

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.566	100	
NOx	3.070	100	
CO	4.309	250	
SOx	0.011	250	
PM 10	0.125	250	
PM 2.5	0.123	250	
Pb	0.000	25	No
NH3	0.004	250	
CO2e	1004.5		

2025 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.000	100	
NOx	0.000	100	
CO	0.000	250	
SOx	0.000	250	
PM 10	0.000	250	
PM 2.5	0.000	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	0.0		

None of estimated annual net emissions associated with this action are above the insignificance indicators, indicating no significant impact to air quality.Therefore, the action will not cause or contribute to an exceedance on one or more NAAQSs.No further air assessment is needed.

Kurt Legleiter, Principal

10/8/2022
DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: VANDENBERG AFB
State: California
County(s): Santa Barbara
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: La Canada Honda Bridge Replacement Project, UPRR Santa Barbara Subdivision Milepost 304.88

- Project Number/s (if applicable):

- Projected Action Start Date: 2 / 2023

- Action Purpose and Need:

Union Pacific Railroad proposes to replace Honda Bridge with a new railroad bridge that would be consistent with Federal Railroad Administration (FRA) standards and current UPRR safety standards. Built in 1898, the existing steel supports at Honda Bridge have corroded and deteriorated, rendering the bridge in need of replacement due to its safety risk. Honda Bridge supports UPRR's Santa Barbara Subdivision, the only route by which passenger and freight trains travel through Ventura, Santa Barbara, and San Luis Obispo Counties. This includes Amtrak's Pacific Surfliner and Coast Starlight passenger trains that provide rail service between San Diego to San Luis Obispo, California (Pacific Surfliner) and Seattle, Washington to Los Angeles, California (Coast Starlight). If the bridge continues to deteriorate, train service would become unsafe, diverting rail travel to the inland portions of California's Central Valley that would result in significant delays to passenger and freight trains. The main project purpose is to maintain publicly available railroad transit opportunities and continue rail service to and along Southern California coastal cities and towns. The benefits of the project result directly from the main purpose, and not from any ancillary component.

- Action Description:

Proposed Action
This section describes Alternative A as the Proposed Action. The Proposed Action Area totals approximately 30.2 acres and is divided into four Project components: (1) bridge replacement, (2) construction and temporary staging (17.3 acres), (3) fiber optic relocation and replacement (2.6 acres), and (4) wetland/waters restoration (up to 2.0 acres) and potential watershed enhancement (up to 10.3 acres) for mitigation.

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the coast-side of the track: one adjacent to the track at Honda Station and one approximately 25 x 15 feet and 7 feet deep. Additionally, a new permanent hand hole would be placed at the Honda Station jack and bore pit to allow fiber carrier access. On the inland side of the tracks, within the bounds of Honda Station, shallow trenching would be necessary along the historic trench alignment to connect temporary fiber lines at the intersection of the reroute location by Access 6.

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- Point of Contact

Name: Kurt Legleiter
Title: Principal
Organization: AMBIENT Air Quality & Noise Consulting
Email: kurt@ambient.consulting
Phone Number: 805.226.2727

- Activity List:

Activity Type		Activity Title
2.	Construction / Demolition	Site Prep, Grading, Bridge Construction
3.	Construction / Demolition	Bridge Construction & Demolition - Stages 7-14
4.	Construction / Demolition	Site Prep - Stage 1
5.	Construction / Demolition	Bridge Construction - Stages 7-12

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location

County: Santa Barbara
Regulatory Area(s): NOT IN A REGULATORY AREA

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Title: Site Prep, Grading, Bridge Construction

- Activity Description:
Construction Stages 2-12 (Yr 2023)

- Activity Start Date
Start Month: 4
Start Month: 2023

- Activity End Date
Indefinite: False
End Month: 10
End Month: 2023

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.556231
SO_x	0.010005
NO_x	3.229687
CO	3.898952
PM 10	0.277858

Pollutant	Total Emissions (TONs)
PM 2.5	0.130716
Pb	0.000000
NH_3	0.003477
CO_2e	953.1

2.1 Site Grading Phase

2.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 4
Start Quarter: 1
Start Year: 2023

- Phase Duration
Number of Month: 3
Number of Days: 5

2.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 74.81
Amount of Material to be Hauled On-Site (yd^3): 22180
Amount of Material to be Hauled Off-Site (yd^3): 0

- Site Grading Default Settings
Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Aerial Lifts Composite	4	7
Air Compressors Composite	1	7
Bore/Drill Rigs Composite	2	7
Cranes Composite	2	7
Excavators Composite	4	7
Forklifts Composite	1	7

Generator Sets Composite	1	7
Rollers Composite	2	7
Rubber Tired Dozers Composite	2	7
Rubber Tired Loaders Composite	3	7
Skid Steer Loaders Composite	1	7
Welders Composite	4	7

- Vehicle Exhaust

Average Hauling Truck Capacity (yd^3): 20

Average Hauling Truck Round Trip Commute (mile): 0.34

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 32

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Aerial Lifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0207	0.0003	0.1524	0.1658	0.0062	0.0062	0.0018	34.768
Air Compressors Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0389	0.0007	0.2458	0.3034	0.0119	0.0119	0.0035	63.695
Bore/Drill Rigs Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0435	0.0017	0.2948	0.5006	0.0045	0.0045	0.0039	164.98
Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0754	0.0013	0.5027	0.3786	0.0181	0.0181	0.0068	128.79
Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0614	0.0013	0.2820	0.5096	0.0117	0.0117	0.0055	119.71
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0258	0.0006	0.1108	0.2145	0.0034	0.0034	0.0023	54.454
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0320	0.0006	0.2612	0.2683	0.0103	0.0103	0.0028	61.065
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0464	0.0007	0.2939	0.3784	0.0158	0.0158	0.0041	67.139
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1830	0.0024	1.2623	0.7077	0.0494	0.0494	0.0165	239.49
Rubber Tired Loaders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**

Emission Factors	0.0622	0.0012	0.3467	0.4339	0.0157	0.0157	0.0056	108.75
Skid Steer Loaders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0196	0.0003	0.1432	0.2110	0.0028	0.0028	0.0017	30.319
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0242	0.0003	0.1487	0.1761	0.0067	0.0067	0.0021	25.657

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.182	000.003	000.108	001.439	000.018	000.006		000.025	00309.173
LDGT	000.237	000.004	000.201	001.951	000.019	000.007		000.027	00378.051
HDGV	000.297	000.006	000.328	002.246	000.031	000.011		000.052	00587.421
LDDV	000.029	000.002	000.282	000.357	000.035	000.022		000.008	00245.901
LDDT	000.019	000.003	000.091	000.166	000.026	000.014		000.009	00321.020
HDDV	000.192	000.008	002.261	000.607	000.132	000.073		000.033	00806.387
MC	006.064	000.002	000.834	020.289	000.021	000.009		000.053	00228.363

2.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.2 Trenching/Excavating Phase

2.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date

Start Month: 8
Start Quarter: 1
Start Year: 2023

- Phase Duration

Number of Month: 1
Number of Days: 11

2.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information

Area of Site to be Trenched/Excavated (ft^2): 10560
Amount of Material to be Hauled On-Site (yd^3): 22180
Amount of Material to be Hauled Off-Site (yd^3): 0

- Trenching Default Settings

Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Air Compressors Composite	1	7
Cranes Composite	2	7
Excavators Composite	3	7
Forklifts Composite	1	7
Generator Sets Composite	1	7
Other Construction Equipment Composite	1	7
Rollers Composite	2	7

Rubber Tired Loaders Composite	3	7
Skid Steer Loaders Composite	1	7
Welders Composite	4	7

- Vehicle Exhaust

Average Hauling Truck Capacity (yd^3): 20

Average Hauling Truck Round Trip Commute (mile): 0.34

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 32

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Aerial Lifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0207	0.0003	0.1524	0.1658	0.0062	0.0062	0.0018	34.768
Air Compressors Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0389	0.0007	0.2458	0.3034	0.0119	0.0119	0.0035	63.695
Bore/Drill Rigs Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0435	0.0017	0.2948	0.5006	0.0045	0.0045	0.0039	164.98
Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0754	0.0013	0.5027	0.3786	0.0181	0.0181	0.0068	128.79
Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0614	0.0013	0.2820	0.5096	0.0117	0.0117	0.0055	119.71
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0258	0.0006	0.1108	0.2145	0.0034	0.0034	0.0023	54.454
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0320	0.0006	0.2612	0.2683	0.0103	0.0103	0.0028	61.065
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0464	0.0007	0.2939	0.3784	0.0158	0.0158	0.0041	67.139
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1830	0.0024	1.2623	0.7077	0.0494	0.0494	0.0165	239.49
Rubber Tired Loaders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0622	0.0012	0.3467	0.4339	0.0157	0.0157	0.0056	108.75
Skid Steer Loaders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**

Emission Factors	0.0196	0.0003	0.1432	0.2110	0.0028	0.0028	0.0017	30.319
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0242	0.0003	0.1487	0.1761	0.0067	0.0067	0.0021	25.657

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.182	000.003	000.108	001.439	000.018	000.006		000.025	00309.173
LDGT	000.237	000.004	000.201	001.951	000.019	000.007		000.027	00378.051
HDGV	000.297	000.006	000.328	002.246	000.031	000.011		000.052	00587.421
LDDV	000.029	000.002	000.282	000.357	000.035	000.022		000.008	00245.901
LDDT	000.019	000.003	000.091	000.166	000.026	000.014		000.009	00321.020
HDDV	000.192	000.008	002.261	000.607	000.132	000.073		000.033	00806.387
MC	006.064	000.002	000.834	020.289	000.021	000.009		000.053	00228.363

2.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.3 Building Construction Phase

2.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date

Start Month: 9
Start Quarter: 1
Start Year: 2023

- Phase Duration

Number of Month: 1
Number of Days: 16

2.3.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Multi-Family
Area of Building (ft^2): 1
Height of Building (ft): N/A
Number of Units: 1

- Building Construction Default Settings

Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Air Compressors Composite	1	7
Cranes Composite	2	7
Excavators Composite	3	7
Forklifts Composite	1	7
Generator Sets Composite	1	7
Rollers Composite	2	7
Rubber Tired Loaders Composite	3	7
Skid Steer Loaders Composite	1	7
Welders Composite	4	7

- Vehicle Exhaust

Average Hauling Truck Round Trip Commute (mile): 0.34

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 32

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips

Average Vendor Round Trip Commute (mile): 32

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

2.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Air Compressors Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0389	0.0007	0.2458	0.3034	0.0119	0.0119	0.0035	63.695
Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0754	0.0013	0.5027	0.3786	0.0181	0.0181	0.0068	128.79
Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0614	0.0013	0.2820	0.5096	0.0117	0.0117	0.0055	119.71
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0258	0.0006	0.1108	0.2145	0.0034	0.0034	0.0023	54.454
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0320	0.0006	0.2612	0.2683	0.0103	0.0103	0.0028	61.065
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0464	0.0007	0.2939	0.3784	0.0158	0.0158	0.0041	67.139
Rubber Tired Loaders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0622	0.0012	0.3467	0.4339	0.0157	0.0157	0.0056	108.75
Skid Steer Loaders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0196	0.0003	0.1432	0.2110	0.0028	0.0028	0.0017	30.319
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0242	0.0003	0.1487	0.1761	0.0067	0.0067	0.0021	25.657

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.182	000.003	000.108	001.439	000.018	000.006		000.025	00309.173
LDGT	000.237	000.004	000.201	001.951	000.019	000.007		000.027	00378.051
HDGV	000.297	000.006	000.328	002.246	000.031	000.011		000.052	00587.421
LDDV	000.029	000.002	000.282	000.357	000.035	000.022		000.008	00245.901
LDDT	000.019	000.003	000.091	000.166	000.026	000.014		000.009	00321.020
HDDV	000.192	000.008	002.261	000.607	000.132	000.073		000.033	00806.387
MC	006.064	000.002	000.834	020.289	000.021	000.009		000.053	00228.363

2.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = NU * 0.36 * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
NU: Number of Units
0.36: Conversion Factor units to trips
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase
$VMT_{VT} = NU * 0.11 * HT$

VMT_{VT}: Vender Tips Vehicle Miles Travel (miles)
NU: Number of Units
0.11: Conversion Factor units to trips
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

3. Construction / Demolition

3.1 General Information & Timeline Assumptions

- Activity Location
County: Santa Barbara
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Bridge Construction & Demolition - Stages 7-14

- Activity Description:
Construction Stages 7-14 (Year 2024)

- Activity Start Date
Start Month: 1
Start Month: 2024

- Activity End Date
Indefinite: False
End Month: 9
End Month: 2024

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.565684
SO_x	0.010767
NO_x	3.070126
CO	4.309357
PM 10	0.124734

Pollutant	Total Emissions (TONs)
PM 2.5	0.122729
Pb	0.000000
NH_3	0.003991
CO_2e	1004.5

3.1 Demolition Phase

3.1.1 Demolition Phase Timeline Assumptions

- Phase Start Date

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Start Month: 6
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 3
Number of Days: 7

3.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 1500
Height of Building to be demolished (ft): 1

- Default Settings Used: No

- Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Air Compressors Composite	1	7
Cranes Composite	3	7
Excavators Composite	3	7
Forklifts Composite	1	7
Generator Sets Composite	1	7
Rollers Composite	1	7
Rubber Tired Loaders Composite	3	7
Skid Steer Loaders Composite	1	7
Welders Composite	4	7

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20
Average Hauling Truck Round Trip Commute (mile): 32

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 32

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

3.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Air Compressors Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0368	0.0007	0.2272	0.3030	0.0102	0.0102	0.0033	63.690
Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e

Emission Factors	0.0715	0.0013	0.4600	0.3758	0.0161	0.0161	0.0064	128.78
Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0584	0.0013	0.2523	0.5090	0.0100	0.0100	0.0052	119.71
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0246	0.0006	0.0973	0.2146	0.0029	0.0029	0.0022	54.451
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0303	0.0006	0.2464	0.2674	0.0091	0.0091	0.0027	61.061
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0434	0.0007	0.2707	0.3772	0.0139	0.0139	0.0039	67.130
Rubber Tired Loaders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0587	0.0012	0.3130	0.4323	0.0137	0.0137	0.0053	108.74
Skid Steer Loaders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0190	0.0003	0.1389	0.2106	0.0022	0.0022	0.0017	30.317
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0227	0.0003	0.1427	0.1752	0.0059	0.0059	0.0020	25.653

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.164	000.003	000.093	001.268	000.017	000.006		000.025	00285.560
LDGT	000.217	000.004	000.177	001.754	000.018	000.007		000.027	00356.560
HDGV	000.273	000.005	000.286	002.004	000.029	000.010		000.052	00545.059
LDDV	000.026	000.002	000.237	000.323	000.031	000.020		000.008	00225.935
LDDT	000.017	000.003	000.082	000.161	000.025	000.013		000.009	00309.267
HDDV	000.176	000.007	002.043	000.559	000.124	000.067		000.033	00760.601
MC	005.697	000.002	000.762	018.634	000.019	000.008		000.053	00210.432

3.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)
BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

3.2 Building Construction Phase

3.2.1 Building Construction Phase Timeline Assumptions

- Phase Start Date

Start Month: 1
Start Quarter: 1
Start Year: 2024

- Phase Duration

Number of Month: 5
Number of Days: 21

3.2.2 Building Construction Phase Assumptions

- General Building Construction Information

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Building Category: Multi-Family
Area of Building (ft^2): 1
Height of Building (ft): N/A
Number of Units: 1

- Building Construction Default Settings
Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Air Compressors Composite	1	7
Cranes Composite	2	7
Excavators Composite	3	7
Forklifts Composite	1	7
Generator Sets Composite	1	7
Rollers Composite	2	7
Rubber Tired Loaders Composite	3	7
Skid Steer Loaders Composite	1	7
Welders Composite	4	7

- Vehicle Exhaust
Average Hauling Truck Round Trip Commute (mile): 0.34

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 32

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips
Average Vendor Round Trip Commute (mile): 32

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

3.2.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Air Compressors Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0368	0.0007	0.2272	0.3030	0.0102	0.0102	0.0033	63.690
Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0715	0.0013	0.4600	0.3758	0.0161	0.0161	0.0064	128.78
Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**

Emission Factors	0.0584	0.0013	0.2523	0.5090	0.0100	0.0100	0.0052	119.71
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0246	0.0006	0.0973	0.2146	0.0029	0.0029	0.0022	54.451
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0303	0.0006	0.2464	0.2674	0.0091	0.0091	0.0027	61.061
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0434	0.0007	0.2707	0.3772	0.0139	0.0139	0.0039	67.130
Rubber Tired Loaders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0587	0.0012	0.3130	0.4323	0.0137	0.0137	0.0053	108.74
Skid Steer Loaders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0190	0.0003	0.1389	0.2106	0.0022	0.0022	0.0017	30.317
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0227	0.0003	0.1427	0.1752	0.0059	0.0059	0.0020	25.653

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.164	000.003	000.093	001.268	000.017	000.006		000.025	00285.560
LDGT	000.217	000.004	000.177	001.754	000.018	000.007		000.027	00356.560
HDGV	000.273	000.005	000.286	002.004	000.029	000.010		000.052	00545.059
LDDV	000.026	000.002	000.237	000.323	000.031	000.020		000.008	00225.935
LDDT	000.017	000.003	000.082	000.161	000.025	000.013		000.009	00309.267
HDDV	000.176	000.007	002.043	000.559	000.124	000.067		000.033	00760.601
MC	005.697	000.002	000.762	018.634	000.019	000.008		000.053	00210.432

3.2.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = NU * 0.36 * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
NU: Number of Units
0.36: Conversion Factor units to trips
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase
$VMT_{VT} = NU * 0.11 * HT$

VMT_{VT}: Vender Tips Vehicle Miles Travel (miles)
NU: Number of Units
0.11: Conversion Factor units to trips
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

4. Construction / Demolition

4.1 General Information & Timeline Assumptions

- Activity Location
County: Santa Barbara
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Site Prep - Stage 1

- Activity Description:
Site Prep - Stage 1 Yr2023

- Activity Start Date

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Start Month: 2
Start Month: 2023

- Activity End Date
Indefinite: False
End Month: 3
End Month: 2023

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.146786
SO_x	0.002471
NO_x	0.862444
CO	0.978734
PM 10	0.037918

Pollutant	Total Emissions (TONs)
PM 2.5	0.036353
Pb	0.000000
NH_3	0.000768
CO_2e	237.7

4.1 Site Grading Phase

4.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 2
Start Quarter: 1
Start Year: 2023

- Phase Duration
Number of Month: 1
Number of Days: 19

4.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 74.81
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 0

- Site Grading Default Settings
Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Aerial Lifts Composite	4	7
Air Compressors Composite	1	7
Excavators Composite	4	7
Generator Sets Composite	1	7
Graders Composite	1	7
Rollers Composite	2	7
Rubber Tired Dozers Composite	2	7
Rubber Tired Loaders Composite	3	7
Skid Steer Loaders Composite	1	7

- Vehicle Exhaust

Average Hauling Truck Capacity (yd^3): 20
Average Hauling Truck Round Trip Commute (mile): 0.34

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 32

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

4.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Aerial Lifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0207	0.0003	0.1524	0.1658	0.0062	0.0062	0.0018	34.768
Air Compressors Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0389	0.0007	0.2458	0.3034	0.0119	0.0119	0.0035	63.695
Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0614	0.0013	0.2820	0.5096	0.0117	0.0117	0.0055	119.71
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0320	0.0006	0.2612	0.2683	0.0103	0.0103	0.0028	61.065
Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0757	0.0014	0.4155	0.5717	0.0191	0.0191	0.0068	132.91
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0464	0.0007	0.2939	0.3784	0.0158	0.0158	0.0041	67.139
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1830	0.0024	1.2623	0.7077	0.0494	0.0494	0.0165	239.49
Rubber Tired Loaders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0622	0.0012	0.3467	0.4339	0.0157	0.0157	0.0056	108.75
Skid Steer Loaders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0196	0.0003	0.1432	0.2110	0.0028	0.0028	0.0017	30.319

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.182	000.003	000.108	001.439	000.018	000.006		000.025	00309.173
LDGT	000.237	000.004	000.201	001.951	000.019	000.007		000.027	00378.051
HDGV	000.297	000.006	000.328	002.246	000.031	000.011		000.052	00587.421
LDDV	000.029	000.002	000.282	000.357	000.035	000.022		000.008	00245.901
LDDT	000.019	000.003	000.091	000.166	000.026	000.014		000.009	00321.020
HDDV	000.192	000.008	002.261	000.607	000.132	000.073		000.033	00806.387
MC	006.064	000.002	000.834	020.289	000.021	000.009		000.053	00228.363

4.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase
$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

5. Construction / Demolition

5.1 General Information & Timeline Assumptions

- Activity Location
County: Santa Barbara
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Bridge Construction - Stages 7-12

- Activity Description:
Construction - Stages 7-12 (Yr 2023)

- Activity Start Date
Start Month: 11
Start Month: 2023

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2023

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.136358
SO_x	0.002458
NO_x	0.766097
CO	0.969974
PM 10	0.031932

Pollutant	Total Emissions (TONs)
PM 2.5	0.031521
Pb	0.000000
NH_3	0.000890
CO_2e	230.6

5.1 Building Construction Phase

5.1.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 11
Start Quarter: 1
Start Year: 2023

- Phase Duration
Number of Month: 1
Number of Days: 30

5.1.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Multi-Family
Area of Building (ft^2): 1
Height of Building (ft): N/A

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Number of Units: 1

- Building Construction Default Settings
Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Air Compressors Composite	1	7
Cranes Composite	3	7
Excavators Composite	3	7
Forklifts Composite	1	7
Generator Sets Composite	1	7
Rollers Composite	1	7
Rubber Tired Loaders Composite	3	7
Skid Steer Loaders Composite	1	7
Welders Composite	4	7

- Vehicle Exhaust
Average Hauling Truck Round Trip Commute (mile): 20

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 32

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips
Average Vendor Round Trip Commute (mile): 32

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

5.1.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Air Compressors Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0389	0.0007	0.2458	0.3034	0.0119	0.0119	0.0035	63.695
Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0754	0.0013	0.5027	0.3786	0.0181	0.0181	0.0068	128.79
Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0614	0.0013	0.2820	0.5096	0.0117	0.0117	0.0055	119.71
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**

Emission Factors	0.0258	0.0006	0.1108	0.2145	0.0034	0.0034	0.0023	54.454
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0320	0.0006	0.2612	0.2683	0.0103	0.0103	0.0028	61.065
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0464	0.0007	0.2939	0.3784	0.0158	0.0158	0.0041	67.139
Rubber Tired Loaders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0622	0.0012	0.3467	0.4339	0.0157	0.0157	0.0056	108.75
Skid Steer Loaders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0196	0.0003	0.1432	0.2110	0.0028	0.0028	0.0017	30.319
Welders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0242	0.0003	0.1487	0.1761	0.0067	0.0067	0.0021	25.657

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.182	000.003	000.108	001.439	000.018	000.006		000.025	00309.173
LDGT	000.237	000.004	000.201	001.951	000.019	000.007		000.027	00378.051
HDGV	000.297	000.006	000.328	002.246	000.031	000.011		000.052	00587.421
LDDV	000.029	000.002	000.282	000.357	000.035	000.022		000.008	00245.901
LDDT	000.019	000.003	000.091	000.166	000.026	000.014		000.009	00321.020
HDDV	000.192	000.008	002.261	000.607	000.132	000.073		000.033	00806.387
MC	006.064	000.002	000.834	020.289	000.021	000.009		000.053	00228.363

5.1.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = NU * 0.36 * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
NU: Number of Units
0.36: Conversion Factor units to trips
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

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- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase

$VMT_{VT} = NU * 0.11 * HT$

VMT_{VT}: Vender Tips Vehicle Miles Travel (miles)
NU: Number of Units
0.11: Conversion Factor units to trips
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons