

DRAFT
ENVIRONMENTAL ASSESSMENT

Humboldt Bay Entrance Channel Jetties

FY2020 & FY2021 Repairs and Reconstruction



October 2019



U.S Army Corps of Engineers
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Planning Branch, Environmental Section

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Acronyms

ACHP	Advisory Council on Historic Preservation
AHPA	Archaeological and Historic Preservation Act
APE	Area of Potential Effects
AQMD	Air Quality Management District
BCOES	Bid ability, Constructability, Operability, Environmental, Sustainability
BLM	Bureau of Land Management
BMPs	Best Management Practices
CAA	Clean Air Act
CC	California Coastal
CCA	California Coastal Act of 1976, as amended
CCC	California Coastal Commission
CCMP	California Coastal Management Program
CD	Consistency Determination
CDFW	California Department of Fish and Wildlife
C.F.R.	Code of Federal Regulations
CH	Critical Habitat
CWA	Clean Water Act
CZMA	Coastal Zone Management Act of 1972, as amended
DOT	Department of Transportation
DQC	District Quality Control
EA	Environmental Assessment
EFH	Essential Fish Habitat
EPP	Environmental Protection Plan
ESA	Endangered Species Act
ESU	Evolutionary Significant Unit
FMP	Fishery Management Plan
FONSI	Finding of No Significant Impact
FY	Fiscal Year
IPaC	Information for Planning and Consultation
MLLW	Mean Lower-Low Water
mph	miles per hour
MSA	Magnuson-Stevens Conservation and Management Act
n/a	not applicable

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NAAQS.....	National Ambient Air Quality Standards
NC	Northern California
NCRWQCB	North Coast Regional Water Quality Control Board
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS.....	National Marine Fisheries Service
NOAA.....	National Oceanic and Atmospheric Administration
NRHP.....	National Register of Historic Places
NTP	Notice to Proceed
NWP-3	Nationwide Permit 3 – Maintenance
O&M	Operations and Maintenance
SDPS.....	Southern Distinct Population Segment
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SONCC	Southern Oregon/ Northern California Coast
SPN	San Francisco District
T&E	Threatened and Endangered Species under the ESA
THPO	Tribal Historic Preservation Officer
TMP.....	Traffic Management Plan
USACE.....	United States Army Corps of Engineers, San Francisco District
U.S.C.	United States Code
USCG	United States Coast Guard
USEPA	United States Environmental Protection Agency
WDR.....	Waste Discharge Requirements
WQC	Water Quality Certification

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1 Introduction

This document, written in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. § 4321 *et seq.*), as amended, could have been planned as a Categorical Exclusion because it covers routine maintenance activities (33 C.F.R. 230.9)—including repair and rehabilitation of existing U.S. Army Corps of Engineers (USACE) structures. Instead, it was written as an Environmental Assessment (EA), thereby requiring a signed Finding of No Significant Impact (FONSI) [under Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the NEPA (40 C.F.R. §§ 1500-1508), and Planning Regulations (Engineering Regulation (ER) 200-2-2], because of various environmental issues involving air quality, noise, and protection of the Snowy Plover.

This EA presents an evaluation of the potential impacts (direct, indirect, and cumulative) to the human environment resulting from proposed fiscal year (FY) 2020 and 2021 repairs to the North and South Jetties at the entrance to Humboldt Bay, California. For the purposes of this analysis, potential areas of impact include the complete footprint of the jetty repairs, including all areas touched by the transport of rock from the quarry of origin.

1.1 Authority and Funding

Authority for repair and reconstruction of the Entrance Channel Jetties at Humboldt Bay and Harbor is provided by the Rivers and Harbors Acts of 1910, 1930, 1935, and 1968. Project funding is classified as Operations and Maintenance (O&M) work.

Appropriations for the planning, design, and initial construction work in FY2020, largely covering the North Jetty, are from the Harbor Maintenance Trust Fund. It is anticipated that subsequent appropriations will be forthcoming in FY2021 as well, so as to fund work on the South Jetty and complete the project. It is to be understood that actions cited in this EA as taking place in FY2021 are contingent upon receipt of this funding. If it is not forthcoming, construction work will be delayed into subsequent years.

1.2 Purpose and Need for Action

Storms, with their severe wave action and unusual high tides have, over the years, visibly removed quantities of structural stone and degraded the concrete structure of the Humboldt Bay Entrance Channel Jetties. A condition survey was conducted during the summer of 2018 that describes and quantifies the amount of missing structural stone and the degree of concrete degradation. This survey describes in detail the types of actions that are needed to prevent further degradation, and where these different actions are needed (Appendix B, C). This would be the first major repair and reconstruction of the jetties since the 1970s.

The *purpose* of the proposed project is to restore the jetties to their design dimensions in order to preserve safe navigation of the Humboldt Bay Entrance Channel. The proposed actions involve resetting pre-existing stones, placing newly-quarried stones, and pouring a new concrete cap where needed. The *need* for these actions is to stabilize the jetties in order to prevent further degradation from storm surges and severe wave activity.

1.3 Location and Physical Setting

Humboldt Bay, a sprawling coastal estuary in Northern California (Humboldt County), is about 225 nautical miles north of San Francisco and 64 nautical miles south of Crescent City. The entrance to the bay is protected by two slightly convergent, rubble-mound jetties (Figure 1). The distance between the two straight portions ranges from 2,288' at their base to 2,090' between their heads. Two long sand spits divided by a narrow inlet separate Humboldt Bay from the ocean. The North and South Spits consist of beach and dune habitat with scattered pine trees, shrubs and grasses. The North Jetty extends out beyond the North Spit into the Pacific Ocean by some 2200', whereas the South Jetty extends some 3,300' beyond the South Spit. The full length of the jetties is approximately 8000 feet, with the North Jetty curved northward like a backwards letter "J," and the South Jetty angled down towards the south.

The width of the bay varies from 0.5 miles to about 4 miles, whereas the length is about 14 miles. The Entrance Channel, which provides ingress and egress for deep-draft vessels serving Humboldt Harbor and Bay environs, is periodically maintenance dredged to a congressionally-authorized depth of 48 feet (plus two feet of allowable overdepth). The Entrance Channel, situated between the two jetties, lies closer to the South Jetty (Figure 1).

1.4 Existing Conditions

The Humboldt Bay region climate consists of moderate temperatures and considerable precipitation. Typically, the region experiences mild, moist winters and cool, dry, foggy summers. Mean monthly air temperatures along the coast vary about 10° (°F) from summer to winter; ocean temperatures typically are between 52 and 56°F. Rainfall generally occurs every month of the year with light amounts of rain typified during the summer months.

As winter approaches, the Pacific High begins to weaken and shift to the south, allowing polar storms to pass through the region. Severe storms, heavy winds and squalls occur frequently along the coast during the winter season as a result. As such, the Humboldt Bay jetties are regularly pounded by the severe wave conditions spawned by these storms. The Pacific Northwest, and particularly the Humboldt Bay environs, experiences the most extreme wave climate, by an order of magnitude, of any place in the continental United States.

The following excerpt, from a 19th-century U.S. Army Corps of Engineers navigation report, describes typical sea conditions at the entrance to Humboldt Bay during the winter months:

"It has been reported by masters of vessels that no such heavy seas have been encountered elsewhere in the world, unless perhaps south of the Cape of Good Hope or Cape Horn. Waves have been seen to break in 8 or 10 fathoms of water. It was originally believed that no jetties or such construction could possibly withstand the forces brought to bear by waves during storms, so that the improvement was undertaken with great misgiving."

A vivid description of the enormous waves encountered by navigators and those engaged in attempting to provide a stable entrance to Humboldt Bay through the construction, repair and maintenance of jetties. Indeed, the Humboldt Jetties are two of the oldest manmade structures on the Pacific coast subjected to extreme wave attack (Magoon *et al.*, 1976).

In the absence of significant freshwater inflow, the predominant driving forces in Humboldt Bay are the tides. Circulation within the Bay is almost entirely tidally dominated, and the hydrography of the Bay is normally unstratified marine water. The intertidal and subtidal portions of the North and South Jetties support green, red, and brown algae communities. The only wildlife to be regularly associated with the jetties are sea birds who have been known to occasionally roost there.

The jetties, which protect the Entrance Channel, yield numerous benefits. For example, the channel was originally deepened to 25' in 1896, and over the years the depth has been gradually increased to today's 48' (plus two feet of allowable overdepth). Additionally, the United States Coast Guard (USCG) maintains a search and rescue station on the North Spit.

Economic benefits from the jetties include boons to the lumber industry, various export/import businesses, waterborne commerce, and opportunities for recreational endeavors such as deep sea fishing and surfing. As such, the region's economic stability has depended upon continued maintenance and design improvements to the Humboldt Bay jetties.

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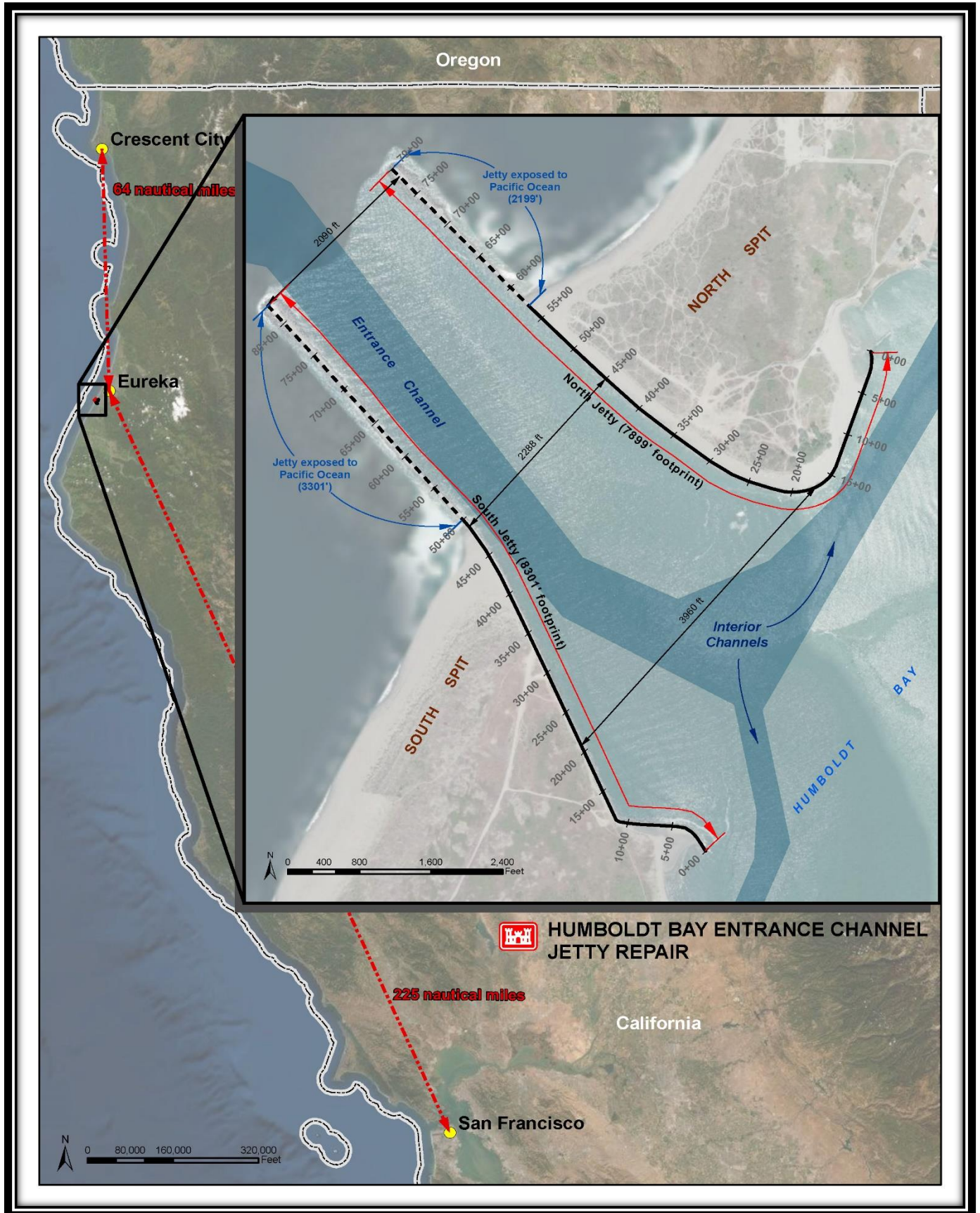


Figure 1. Map showing location and footprint (inset) of the proposed project.

1.5 Brief Construction History

Prior to construction of the jetties, efforts to enter Humboldt Bay were very dangerous. In the period between 1853 and 1880, 81 people were killed while their vessels were navigated unsuccessfully across the large sand bar which obstructed the harbor's entrance. Local concerns were not only for safety, but also for enriched commerce (U.S. Congress 1879). From 1877 to 1884, William Ayres, editor to the Eureka newspaper, expended considerable effort to gain the attention of Congress and the Army Corps of Engineers to realize his vision of Eureka and Humboldt Bay as the commercial center of Northern California. He suggested a jetty system be built similar to that constructed on the Mississippi River a few years before (Pritchard 1987).

The lobbying efforts of local citizens, led unofficially by Ayres, culminated in the passage of the Rivers and Harbors Act of 1881, which led to the construction of a channel, and the construction of a jetty 6000 feet long extending northwesterly from the South Spit. Construction began on the South Jetty in 1889; work on the North Jetty began in 1891. By late 1891, the South Jetty was about 4000 feet long and the North Jetty was 1500 feet long.

The jetties were constructed by dumping rock from rail cars on trestles. The rock of the jetties was composed of pieces up to 8 tons in weight. They were allowed to assume their own slope as dumped from the cars. The heavy seas would flatten this slope and lower the top. More rock would then be added to raise it. This process needed to be repeated several times (HAER Draft 1987).

In July 1915, a trestle was built on the North Jetty and the jetty was reconstructed with a 1050-ton concrete monolith added to its seaward end. With this reconstruction, the jetty was finished with a concrete slab, 20 feet wide and 2 feet thick, in which the railroad ties for the crane and rock car tracks were embedded. Between 1925 and 1927, parapet walls and concrete caps were added to the crests of both jetties and mass concrete was poured on channel-side slopes to stabilize armor stone. By 1939, the North and South Jetties were completed to their full lengths, with the elevation of the crest at the seaward ends varying from about 12 to 19 feet MLLW.

Between the 1920s and the 1980s, the jetties were under almost continuous repair or modification. For example, the South Jetty was breached in 1950 between stations 85+63 and 86+35, particularly on their sea side. The side slope was patched by mass concrete to conform to existing adjacent slopes to elevation +18 MLLW. Under a continuous repair contract, a breach in the South Jetty the following year was repaired with 950 cubic yards of mass concrete plus twelve 100-ton concrete blocks.

Notably, during the early 1970s, thousands of 42-ton, 15' x 15' x 15' concrete tetrapods ("dolosse") were placed on the seaward jetty heads, which had been almost completely destroyed by storms (Hagwood 1981). Since the dolosse were placed (1971-73), however, only routine, relatively small-scale maintenance has been carried out on the jetties.

In 1977, the North and South Jetties were officially recognized by USACE as California Historical Civil Engineering Landmarks (USACE 1991). Milestones and other highlights of major repairs and jetty improvements over the last century and a half are listed in Table 1.

Humboldt Bay Entrance Channel Jetties: FY2020 & FY2021 Repairs & Reconstruction

Table 1. Highlights: Milestones & Major Improvements of the Humboldt Bay Jetties.

<i>Year</i>	<i>Description*</i>
1853	First marker buoys for bay.
1856	Light tower completed on North Spit.
1881	Brush and plank jetties constructed—destroyed in winter.
1881	First USACE project authorized; Eureka Channel first dredged.
1884	South Jetty authorized.
1888	Dual jetties authorized.
1889	South Jetty construction started (brush and stone construction).
1891	North Jetty construction started.
1896	Bar Channel deepened to -25 ft. MLLW, and widened to 100 ft.
1900	Initial jetty construction completed; 8,000 ft. long, 5-10 ft. above MLLW.
1911-17	Jetties damaged and repaired; raised from 10 ft. to height of 18 ft. MLLW.
1915	Trestle built; 1050-ton concrete monolith added to N. Jetty seaward end.
1925-27	Parapet walls and concrete caps added to both jetties.
1939	Dual rubble-mound jetties completed.
1954	Entrance Channel deepening completed to -40 ft. MLLW.
1959	Engineering and design study; repair on North and South Jetty.
1960-63	Repair damage of winter of 1957-58.
1964-65	Extreme winter storm damage to jetties (100-ton blocks washed away).
1966-67	Repair and maintenance on North and South Jetty.
1969	Jetty repair study and model conducted by ERDC in Vicksburg, MS.
1971-73	Dolosse placed on jetties; heads had been completely destroyed.
1977	USACE lists jetties as California Historical Civil Engineering Landmarks.

**After Tables 2 and 3 of Costa and Glatzel, 2002.*

2 Alternatives

2.1 Introduction

In this section, several alternatives regarding the proposed construction work are laid out. The first alternative considered is No Action (§2.2). Next, various action alternatives are described, with the text split between Activities Common to All Action Alternatives (§2.3), and then a listing of evaluated Action Alternatives (§2.4). Finally, at the end is a very brief section on Alternatives Considered but Not Evaluated further (§2.5).

2.2 No Action Alternative

Under the No Federal Action alternative, the federal government would not repair any segments of the damaged breakwaters. Degradation and significant damage to the jetties is expected to increase gradually over time, especially as they experience severe storms and high-energy wave events during the winter months. Eventually, without proper maintenance, failure of one or both jetties is likely to occur, thereby exposing adjacent sandy beaches and dune habitat to the forces of nature. Furthermore, navigability and safety for deep draft and other commercial and recreational fishing vessels entering and leaving the Entrance Channel would be directly impacted, and businesses and industries dependent upon waterborne commerce would be indirectly adversely affected.

2.3 Activities Common to All Action Alternatives

2.3.1 Repair Types

Repair and reconstruction of the North and South jetties will be limited to those portions below the jetty heads not covered with 42-ton concrete dolosse (measuring 15 x 15 x 15 feet). The repair work can be categorized into three types of action as described below, and as illustrated in Figures 2A, 2B, and 2C. Locations of the different repair types are graphically detailed in Appendix B, and the priority for their replacement (largely based upon the urgency of repairs needed) is graphically detailed in Appendix C.

Repair Type 1— Jetty section maintains its structural integrity. Type 1 repairs involve restoring the concrete cap and parapet wall where it is severely damaged, and replacement of underlying small stones that are missing beneath the cap. Severe wave action over the years has resulted in cracking and loss of existing pieces of the cap, ranging from small, blow-hole size pieces to large scale slumping and failure of immense sections of concrete. Huge cavities in the jetty can develop where underlying stones are exposed and gouged out by storm waves (Figures 2A, 3, 4). The reconstructed cap will be composed entirely of concrete strengthened with glass and steel fibers; it will have no separate steel bar reinforcement.

Repair Type 1 estimated length along the North Jetty: 2,075 feet

Repair Type 1 estimated length along the South Jetty: 675 feet

Repair Type 2— Jetty section maintains its structural integrity. Type 2 repairs involve resetting stones, and as needed, replacement of displaced stones on the jetty slope with newly-quarried rock to restore side slopes to their pre-existing design dimensions (Figures 2B, 5).

Repair Type 2 estimated length along the North Jetty: 3,125 feet

Repair Type 2 estimated length along the South Jetty: 3,375 feet

Repair Type 3— Jetty section has lost its structural integrity (Figures 2C, 6). Type 3 repairs involve removing entire portions of jetty, and then reconstructing them, stone by stone, with both existing stones and newly quarried stones. During reconstruction, rock will be carefully placed by crane into stable, interlocking positions such that the reconstructed jetty will attain its pre-existing design dimensions. Upon completion of Type 3 repairs, a new concrete cap (with glass and steel fiber reinforcement), plus parapet wall will be recreated.

Repair Type 3 estimated length along the North Jetty: 600 feet

Repair Type 3 estimated length along the South Jetty: 600 feet

2.3.2 Repairs & Reconstruction—Background Information

The proposed work is classified as maintenance repair and reconstruction, and as such, the design of the jetties will not be altered. This work will involve procurement of both large boulders, measuring 6-10 feet across, and of smaller stone measuring 6-24 inches across.

The work will entail the following actions: a) mobilizing construction equipment to the site and demobilizing same equipment at the conclusion of the project; b) rearranging existing stones on the jetty slope as needed; c) importing newly-quarried stone and rebuilding the jetty where stone is either missing or where the structural integrity has been compromised by storms and severe wave action; d) removing the concrete cap walkway and parapet wall where damaged or severely degraded, and rebuilding these structures on top of the jetty.

It is anticipated that construction equipment will entail two large cranes capable of hoisting 25-ton boulders, together with trucks and ancillary equipment capable of pouring concrete, and trucks carrying newly-quarried stone as needed. The large crane and trucks will be positioned either on the jetties themselves, or inboard (land) side of the jetties. For each jetty, a contractor's limits of work and "staging area" for the storage of stone and construction equipment will be located nearby. These staging areas, and the haul roads that feed into them, will consist of sandy substrate largely devoid of vegetative growth (Figures 9-11).

For the two jetties, the property directly impacted by the proposed action is exclusively owned by USACE, and therefore real estate permitting is not expected to be at issue. On the other hand, land on the North and South Spits that is contiguous with the jetties is owned by various government agencies (e.g. USCG, USACE, State of California), but it is all managed by the Bureau of Land Management (BLM). Therefore, prior to beginning construction, USACE will obtain a "Special-Use" permit from the BLM before proceeding and has initiated coordination with the BLM regarding the proposed action.

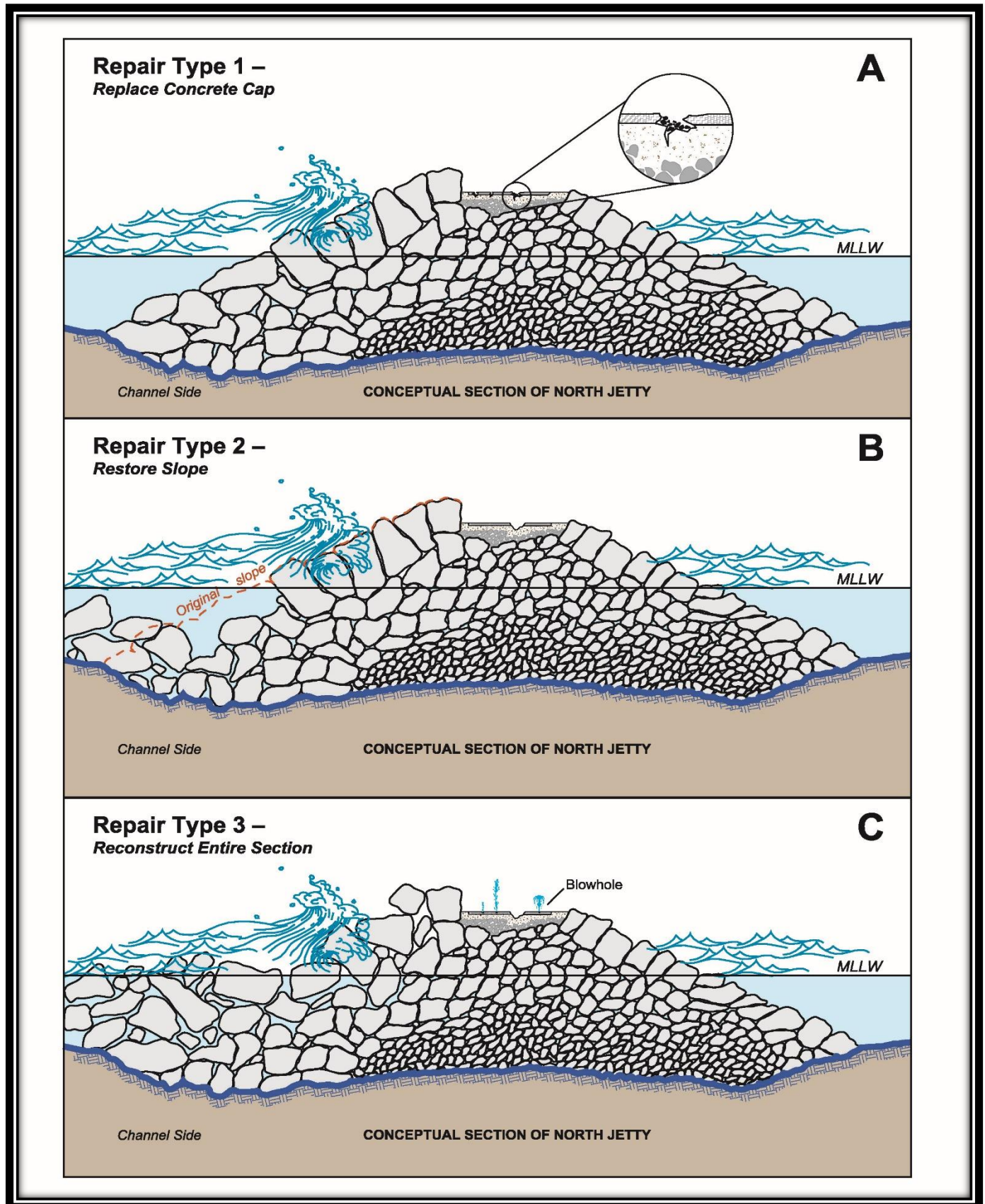


Figure 2. Conceptual depictions of the three types of jetty repair.



Figure 3. Photo of concrete cap in need of repair (Type 1).



Figure 4. Photo of concrete cap in need of repair (Type 1).



Figure 5. Photo of jetty slope in need of repair (Type 2).



Figure 6. Photo of entire jetty cross-section in need of repair (Type 3).

2.3.3 North Jetty Repair—Detailed Information

Repair of the North Jetty is scheduled for 2020. Due to the wave climate in the Entrance Channel, construction will take place approximately between the months of March and October.

The required stone class is 15-20 ton boulders (10'-12' across). Rock for the North Jetty will be sourced either from the Mountain Gate Quarry, in Redding, California (bulk specific gravity = 2.662) or the Liscom Hill Quarry, in Willow Creek, CA (bulk specific gravity = 2.89). USACE is testing rock quality to ensure that it meets technical criteria for jetty construction; physical-testing results and quarry inspection will be completed by October 2019. It is anticipated that the mode of transportation for the quarry rock will be by truck. The maximum travel distance from the Mountain Gate quarry is 190 miles; the travel distance from the Liscom Hill Quarry is 25 miles.

In the event the stones are transported by barge to the project site, a barge will dock and unload the rock at Fairhaven Pier. Once the stones are offloaded, they will be loaded onto trucks and transported on New Navy Base Road to the proposed staging area.

The proposed North Jetty staging area is shown in Figure 9 (Top) and is approximately 4.17 acres; it will be the primary location to store stones and construction equipment. The proposed North Jetty construction limits of work, haul roads, and staging area are shown in Figure 11 (Top). As construction progresses, construction equipment could be stored on top of the existing jetty or on the landward sand dunes where there is little to no existing vegetative growth (the average distance between the jetty and existing vegetation is 120 feet). The landward construction limits of work and especially the staging area will be expected to be inaccessible to the public during the construction season for safety reasons. The parking area north of the staging area will remain open to the public during construction, however, detour signs will be used to redirect the public away from the staging area or areas off limit that are near the jetty. While not expected, should construction on the North Jetty require two seasons, the majority of the staging area and limits to work would be removed – allowing full public access outside of the construction season - and then re-established at the beginning of the next construction season. In such a case, a small portion of the staging area may need to remain in place to hold rocks that have been delivered.

Depending upon available funding and the degree of jetty degradation, the priority level of repairing various sections of the jetty has been mapped out (Appendix B) and prioritized as follows: Priority 1—1,600 feet, Priority 2—1,325 feet, Priority 3—875 feet. There is no correlation between priority level and the category of repair type.

2.3.4 South Jetty Repair—Detailed Information

Repair of the South Jetty is scheduled for 2021. Due to the wave climate in the Entrance Channel, construction will take place approximately between the months of March and October.

The required stone class is 15-20 ton boulders (10'-12' across). Rock for the South Jetty will be sourced either from the Mountain Gate Quarry, in Redding, California (bulk specific gravity = 2.662) or the Liscom Hill Quarry, in Willow Creek, CA (bulk specific gravity =

2.89). USACE is testing rock quality to ensure that it meets technical criteria for jetty construction; physical-testing results and quarry inspection will be completed by October 2019. It is anticipated that the mode of transportation for the quarry rock will be by truck along Table Bluff Road/South Jetty Road. The maximum travel distance from the Mountain Gate quarry is 181 miles; the travel distance from the Liscom Hill Quarry is 38 miles.

The proposed South Jetty staging areas cover approximately 0.76 acres and are shown in Figure 9 (bottom) and Figure 10; these will be the primary locations to store stones and construction equipment. As construction progresses, construction equipment could be stored on top of the existing jetty or on the landward sand dunes where there is little to no existing vegetative growth (the average distance between the jetty and existing vegetation is 40 feet). The proposed South Jetty construction limits of work, haul roads, and staging areas are shown in Figure 11 (Bottom). The landward construction limits of work and especially the staging areas are expected to be inaccessible to the public during the construction season for safety reasons. Thus, the parking area and restroom facility near the South Jetty will likely be closed to the public during construction. Detour signs will be used to redirect the public away from the staging area or areas off limit that are near the jetty. While not expected, should construction on the South Jetty require two seasons, the staging area and limits to work would be removed – allowing full public access outside of the construction season - and then re-established at the beginning of the next construction season. In such a case, a small portion of the staging area may need to remain in place to hold rocks that have been delivered.

Depending upon available funding and the degree of jetty degradation, the priority level of repairing various sections of the jetty has been mapped out (Appendix B) and prioritized as follows: Priority 1—525 feet, Priority 2—725 feet, Priority 3—2,475 feet. There is no correlation between priority level and the category of repair type.

2.3.5 Bringing Rock In by Water

In the event that trucks cannot use Table Bluff Road/South Jetty Road, trucks will be redirected to the Fields Landing Boat Yard to transport the stones by barge to the project site. The barge will transport the stones across the bay to the South Jetty. Because there are no offloading docks in the area, the construction contractor would need to identify a system for offloading stones. No pile driving, or dredging of material, or permanent fill shall be allowed as part of setting up or executing any system of offloading stones. The contractor would also be required to remain within the limits of work for the South Jetty as delineated in Figure 11 (Bottom).

One potential approach would be for a barge, filled with 15-20 ton boulders, or with heavy construction equipment (cranes), to land directly on the beach immediately adjacent to the bay-ward end of the South Jetty. The stones, or equipment, would then be off-loaded, and then transported with a loader to the staging area. With this scenario, it's possible that a small amount of sediment will need to be moved. This action would not involve dredging and subsequent disposal. Instead, sediment removal would involve side-casting (pushing sediment to the side) to create a shallow area, or “notch,” that the barge would be able to

slide into. After completion of the project, the side-casted sediment would be left to naturally return.

2.4 Action Alternatives

2.4.1 Alternative 1—Rock Trucked In From Distant Quarry Source

Under Alternative 1, rock would be trucked in from a distant quarry source. The most likely possibility is the quarry known as Mountain Gate in Redding, California. This quarry contains limestone (bulk sp. gr. = 2.662) that has been petrographically described and tested. The limestone would be blasted into 15-20 ton size boulders (8' to 10' diameter) and temporarily stored at the quarry until it is ready to be transported by truck to the jetty staging areas. Due to their weight, it is expected that the stone would be hauled one-stone per truck trip, or over two construction seasons, approximately 2,000 total truck trips (or roughly 1000 trips per jetty). The travel distance to the North Jetty staging area from Mountain Gate is 190 miles (Figure 7 Top); the distance to the South Jetty staging area is 181 miles (Figure 7 Bottom).

For the South Jetty, if trucks can't get past the bridge crossing or any sharp turns leading to the area along South Jetty Road, the stones will be redirected to Fields Landing boat yard, loaded into a barge, barged over to the unloading area near the bayside end of the south jetty, and then transported to the staging area. On-site equipment (including two heavy-duty cranes and cement trucks operating from the land) would reset existing rock, replace lost rock with new stones from Mountain Gate, and pour a new concrete cap, as needed, to restore the jetty to its design dimensions.

2.4.2 Alternative 2—Rock Trucked In From Nearby Quarry Source

Under Alternative 2, rock would be trucked in from a nearby quarry source. The most likely possibility is the quarry known as Liscom Hill in Willow Creek, California. This quarry contains "greenstone" (bulk sp. gr. = 2.89) that has been petrographically described and tested. The greenstone would be blasted into 15-20 ton size boulders (8'to10' diameter) and temporarily stored at the quarry until it is ready to be transported by truck to the jetty staging areas. Due to their weight, it is expected that the stone would be hauled one-stone per truck trip, or over two construction seasons, approximately 2,000 total truck trips (or roughly 1000 trips per jetty). The travel distance to the North Jetty staging area from Liscom Hill is 25 miles (Figure 8 Top); the distance to the South Jetty staging area is 38 miles (Figure 8 Bottom).

For the South Jetty, if trucks can't get past the bridge crossing or any sharp turns leading to the area along South Jetty Road, the stones will be redirected to Fields Landing boat yard, loaded into a barge, barged over to the unloading area, and then transported to the staging area. On-site equipment (including two heavy-duty cranes and cement trucks operating from the land) would reset existing rock, replace lost rock with new stones from Liscom Hill, and pour a new concrete cap, as needed, to restore the jetty to its design dimensions.

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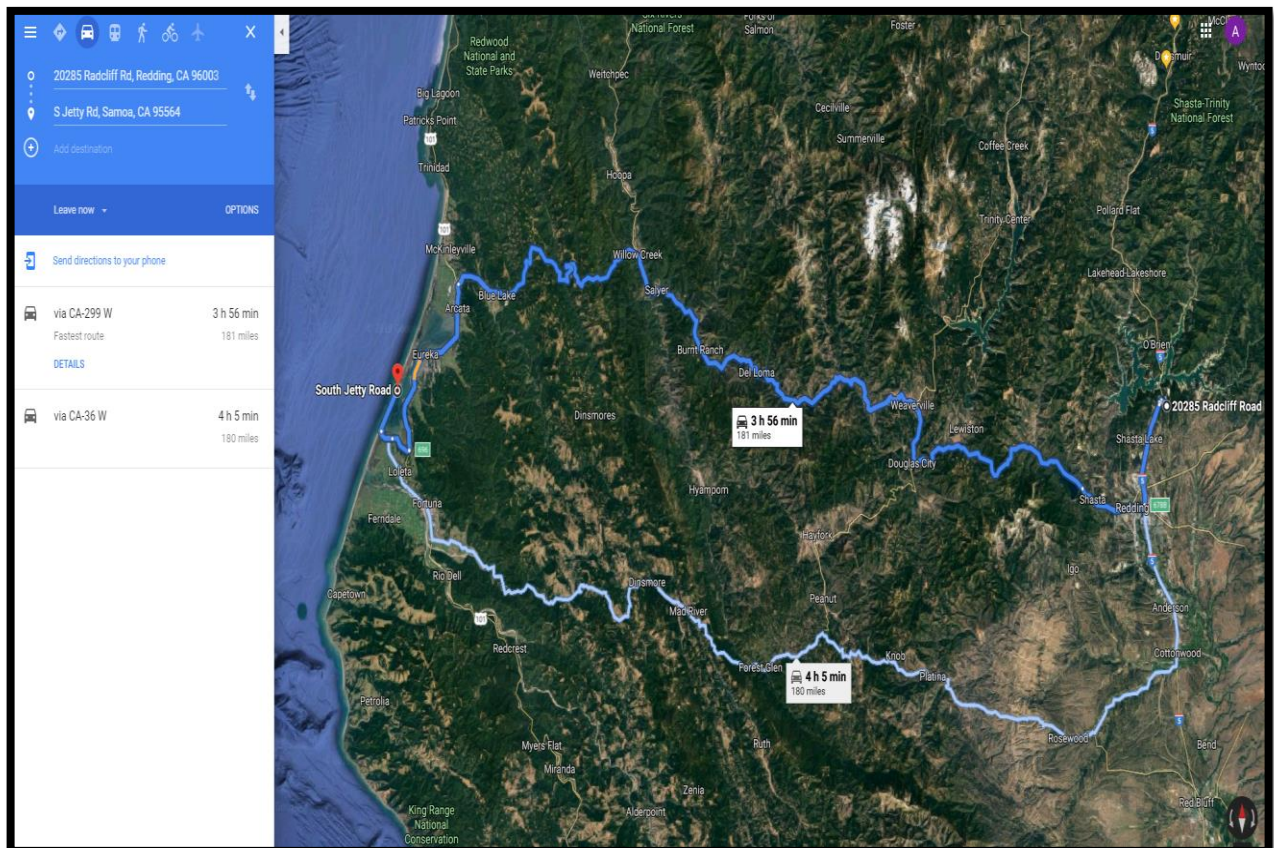
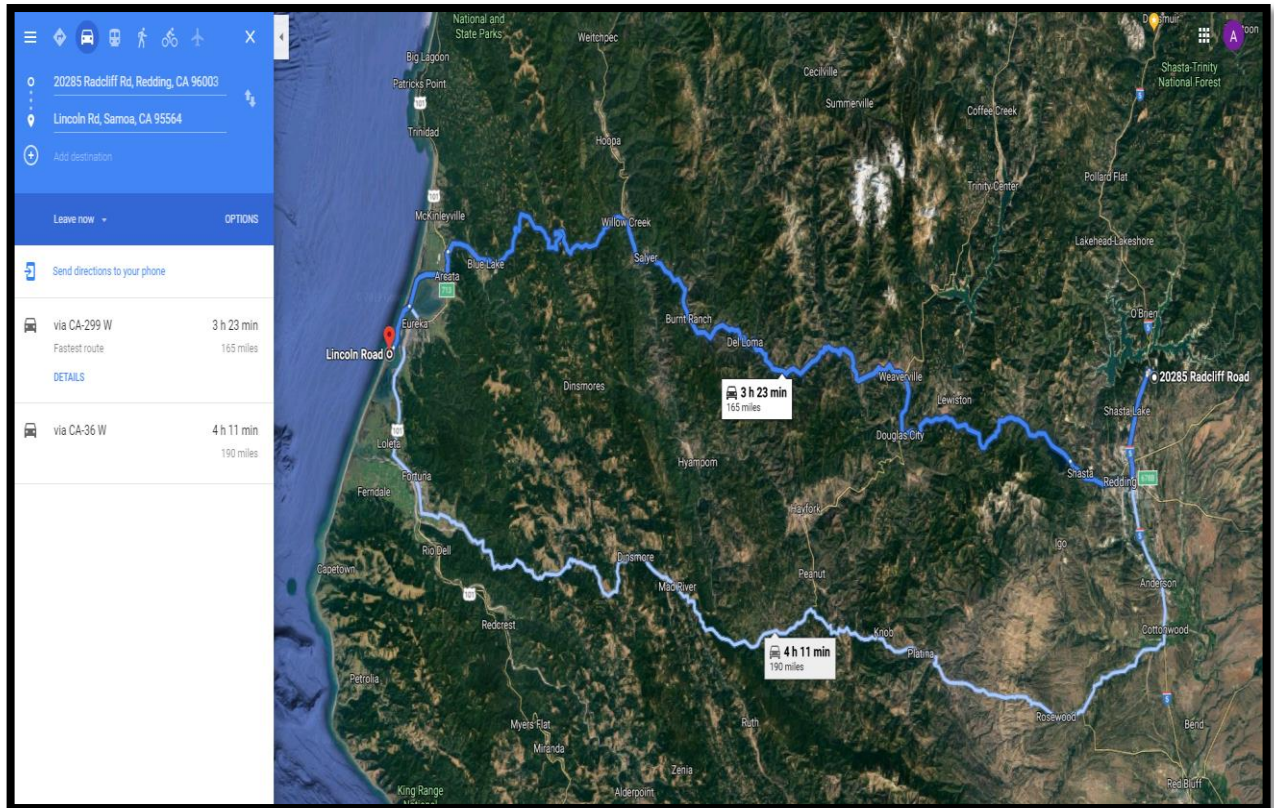


Figure 7. Alternative 1 travel routes to the North Jetty (top) and the South Jetty (bottom).

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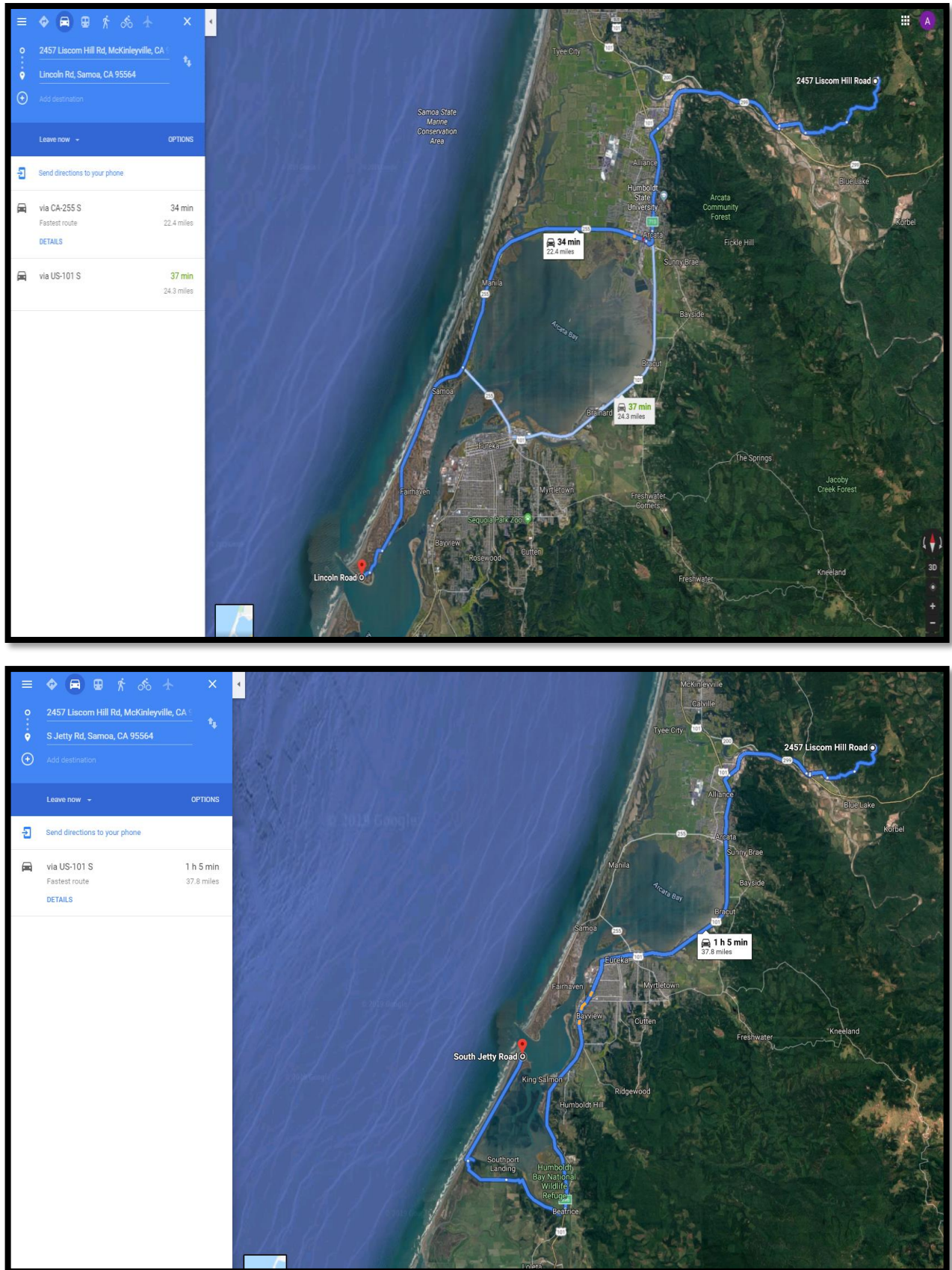


Figure 8. Alternative 2 travel routes to the North Jetty (top) and the South Jetty (bottom).

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Figure 9. Proposed North Jetty (top) and South Jetty (bottom) haul road and staging area existing condition.



Figure 10. Stockpiles of stones, large (left) and small (right), from an earlier South Jetty repair, at the second staging area for the South Jetty.

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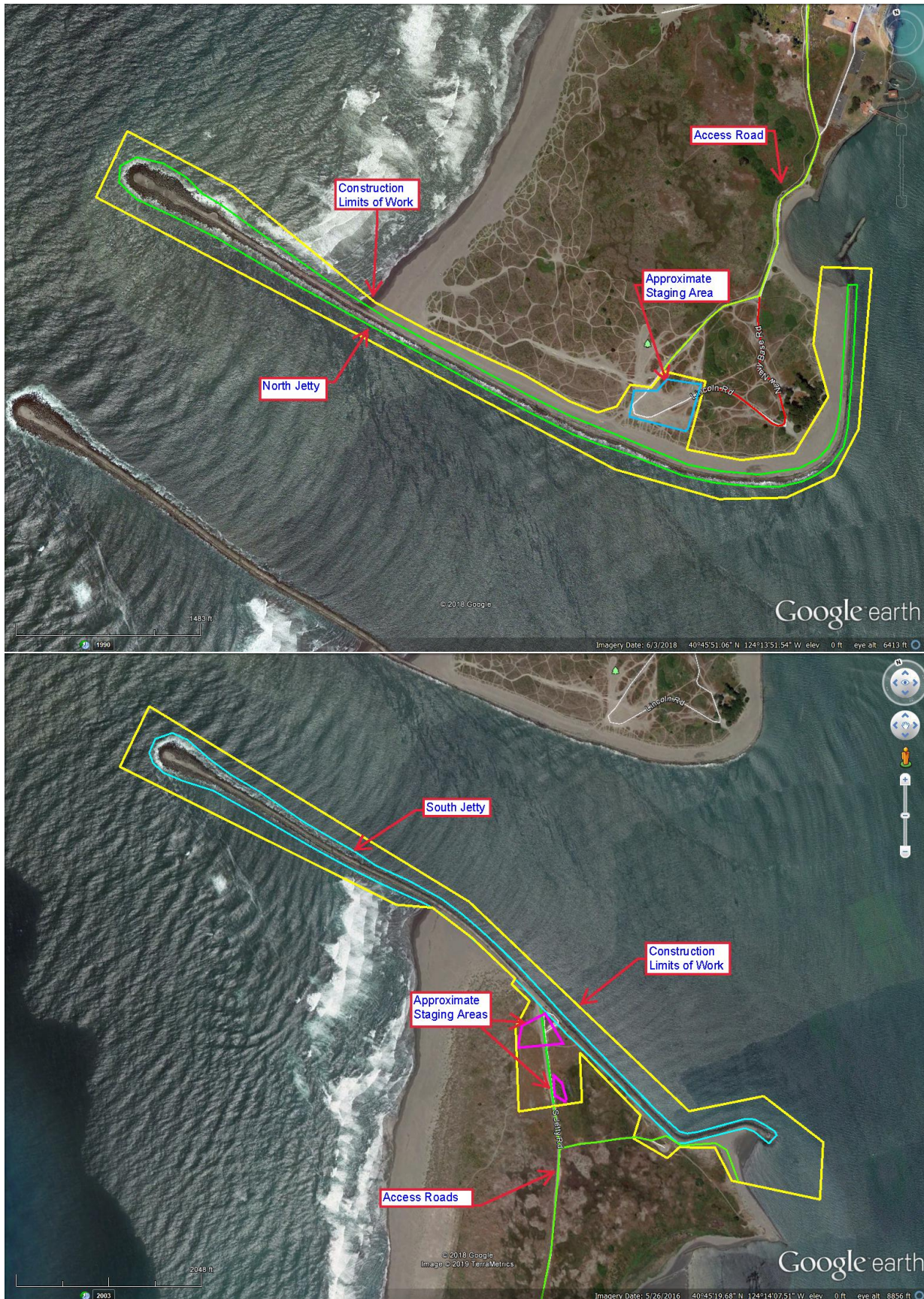


Figure 11. Aerial overview of proposed Limits of work staging areas for the North and South Jetties.

2.4.3 Alternative 3—Some Combination of Alternative 1 and Alternative 2

With this alternative, some combination of trucking in newly-quarried stone from a distant quarry source (Alternative 1) and trucking in stone from a nearby quarry source (Alternative 2) is used. At the contractor's discretion, the combination might be split equally between the North and South Jetties, or in some mixed proportion between the two jetties. If this alternative is used, the fact that construction work on the jetties will take place over multiple fiscal years may partially determine the actual mix.

2.4.4 Alternative 4—Barging In Newly-Quarried Rock

Under this scenario, rock would be barged in from some distant quarry source. Catalina Island, in southern California, is considered the most distant possible quarry source, and is therefore used as a baseline to calculate worst-case air emissions (610 nautical miles distant).

Barge capacity is 2,000 tons per load (equal to 100 to 130 stones of requisite size). The barge would come from the ocean and would use the existing navigation channel (Bar and Entrance Channel) to enter Humboldt Bay. For the North Jetty, the barge would access Fairhaven Pier and the stones would then be transported individually by truck to the staging area; for the South Jetty, the stones can be delivered directly by barge to the project area and then unloaded (see § 2.3.5). Heavy equipment (especially the cranes) could be barged in as well. Precautionary measures that are agreed to during consultation with the resource agencies would be incorporated into the final plans and specs.

2.5 Alternatives Briefly Considered, but Not Evaluated

Alternatives briefly considered, but not evaluated, include barging in rock from quarries in central Oregon and Canada, as well as quarries further south of Catalina Island. For these quarry possibilities, barging in adequate supplies of suitably large rock was considered technically feasible but cost prohibitive. Moreover, air quality impacts would increase with bringing stone from further and further away. Further study of these alternatives was not pursued because USACE has already evaluated four action alternatives that are considered to be environmentally preferable and logistically and economically more feasible.

3 Environmental Compliance

3.1 National Environmental Policy Act (42 U.S.C. § 1451 *et seq.*)

In compliance with NEPA (1969), the USACE is required to identify all direct, indirect, and cumulative impacts to the human environment that could be caused by the repair of the Humboldt Bay Jetties. For projects, or changes to old projects, with potentially significant impacts, NEPA compliance is usually documented in an Environmental Impact Statement. For projects with less than significant impacts, EAs usually document NEPA compliance and a Finding of No Significant Impact (FONSI) is then completed.

This EA was prepared in accordance with NEPA and the USACE's guidelines for implementing NEPA (33 CFR part 230). The draft EA will be circulated for review and comment for the minimum 30-day period; this comment period will occur from October 18 to November 16. These comments, and USACE's responses, will be listed in Appendix K.

3.2 Endangered Species Act (16 U.S.C. §1531 *et seq.*)

The Endangered Species Act of 1973 (ESA) provides protection for federally threatened and endangered species. The United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) each determine which species need protection and maintain a list of threatened, endangered, and candidate species (T&E). Additionally, these agencies each designate species-specific areas of critical habitat.

Summarized in Table 2 is a listing of these species of concern and designated critical habitats (updated June 3, 2019). Figure 14 shows the areas examined by the Information for Planning and Consultation (IPaC) database, a tool developed by USFWS for identifying federally-listed threatened or endangered species, and which are compiled in Table 2. Documentation is provided in Appendix F.

The USACE has coordinated with the USFWS and NMFS regarding the potential effects of the proposed action on threatened and endangered species and designated critical habitat. The agencies concurred that informal consultation was appropriate for this project. The USACE submitted a Biological Assessment (BA) to USFWS (Appendix H) and a BA/ Essential Fish Habitat (EFH) Assessment to NMFS. The ESA effects analyses provided to the USFWS and NMFS is briefly summarized in Table 2, and for several species, is detailed in the paragraphs below. The EFH assessment for various fishery management plans (FMP) is discussed under the Magnuson-Stevens Conservation and Management Act section below.

Snowy Plover

The snowy plover prefers open, flat, sandy nesting sites. Nests have been found on the South Spit (land designated as snowy plover critical habitat) and also in the vicinity of the South Jetty. Largely because of greater human activity, the plover does not appear to nest along the North Spit and there is no critical habitat for the species designated in the vicinity of the North Jetty. Nesting areas for the snowy plover along the South Spit are generally located along the western-most shoreline and extending 800 ft east.

Along the South Spit, the narrow confines of the jetty approach road is not considered problematic with regard to plover nests, but as one moves away from the road, the plover becomes susceptible to disturbance by off-road vehicles and people. The plover nesting season occurs from approximately March 1 through September 14 but can extend to September 30 (Susie Tharratt, USFWS, pers. comm. 6/5/2019) during which time the plover can make several nesting attempts. As this nesting season timing conflicts with the proposed jetty repair work window, noise or other disturbance associated with the proposed action could affect plovers during their breeding season.

For the North Jetty repair and reconstruction activities, the USACE has determined there would be no affect to Snowy Plovers or their critical habitat due to the lack of any critical habitat or Snowy plovers occurring in the vicinity of the North Jetty.

For the South Jetty repair and reconstruction, the USACE has determined the proposed activities are likely to affect, but not adversely affect, the Snowy Plover and its critical habitat nor jeopardize the continued existence of the species. The USACE is proposing to enforce the following avoidance measures for construction activities in the South Jetty area in order to avoid and minimize any adverse effects to Snowy Plover and its critical habitat:

- ✓ A qualified biologist will be onsite at all times during construction activities and will perform snowy plover nesting surveys within 600 ft of construction.
- ✓ Construction equipment shall have no access to the beach directly adjacent to the South Jetty seaward slope from the shoreline and extending 1,200 ft inland.
- ✓ If snowy plover nests are located within 600 ft of construction, all construction equipment will remain at least 300 ft away and maintain a speed up to 5 mph. If construction equipment cannot maintain a 300 foot distance away from the snowy plover, the contractor may continue construction under the direction of the qualified biologist.
- ✓ Placement of signage, fencing, and other preventative measures are required and should be erected at least 300 ft away from the nearest nest. Any new signs, fencing, etc. shall incorporate best management practices to minimize predation around the snowy plover. Under the supervision of the qualified biologist, additional inspections, minor maintenance, research, and/or monitoring activities could be performed within 300 ft of the nest during the snowy plover breeding season.
- ✓ To the maximum extent practicable, all construction equipment mufflers will be directed away from areas of critical habitat to reduce noise disturbance.
- ✓ Haul routes from the staging area to the South Jetty will remain within the construction limits of work at all times.
- ✓ Equipment in the staging areas stored during non-construction hours will face away from critical habitat areas and have booms lowered at an angle to prevent predation around critical habitat areas.
- ✓ The contractor is not allowed to have animals (cats, dogs, etc.) onsite.
- ✓ No garbage or litter will be stored on or within the construction footprint.

- ✓ A qualified biologist will hold an environmental education program for all workers on Snowy Plover prior to starting construction activities.
- ✓ To the maximum extent practicable, critical habitat will be avoided.

Beach Layia

The BLM personnel voiced concern regarding impacts to Beach Layia, an endangered plant species, potentially inhabiting the vicinity of the proposed landing area for barges at the South Jetty (should barging of rock be necessary). The USACE discussed the potential for the proposed activities to impact this species with USFWS and determined the proposed activities would not affect the species. Beach Layia is thought to like areas where disturbance occurs, and would therefore appear to be compatible with the construction environment that would be present during jetty repairs. However, prior to releasing the construction solicitation, USACE will consult with the BLM's botanist to identify appropriate best management practices to include in the construction specifications to avoid disturbance to special-status plant species (such as beach layia, pink sand verbena, manyleaf gilia), if the barge landing area at the South Spit is deemed necessary by the construction contractor.

Tidewater Goby

The Northern tidewater goby is native to coastal lagoons and brackish bays near the mouths of freshwater streams along the northern California coast. Its critical habitat in the South Bay (Humboldt Bay National Wildlife Refuge), designated by USFWS, is within 3 miles of the project footprint. However, the species is not expected to occur in the vicinity of the jetty project action area nor is there any critical habitat in the vicinity of the jetties. The USACE has determined the Tidewater Goby would not be affected by the proposed action.

Salmonids and Green Sturgeon

For the threatened or endangered Southern Oregon/Northern California Coast (SONCC) coho salmon, California Coastal (CC) Chinook salmon, Northern California (NC) steelhead, the Southern Distinct Population Segment (SDPS) of North American green sturgeon, USACE has determined that the proposed action may effect, but is not likely to adversely affect these species, or their respective designated critical habitats. These species occur in open, Pacific Ocean waters and may transit in the vicinity of the jetties. In-water work associated with the proposed action would be performed entirely by cranes stationed on land and consist only of relocating existing boulders from the channel bottom to the jetty, or of placing new boulders from the landward side onto the jetties. Boulder placement would be slow and deliberate. Due to the very small, temporary, and localized in-water construction activities juveniles as well as adults of these species would be expected to be motile enough to avoid direct disturbance. Noise would be limited to localized chain-on-rock or rock-on-rock contact and would be temporary. Localized disturbance or crushing of benthic food organisms may occur but this would be very small relative to the overall length and area of benthic habitat along the jetties. The following measures will be implemented to avoid and minimize impacts to these species and their critical habitats:

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- ✓ Standard best-management practices will be applied to protect species and their habitat(s) from pollution because of fuels, oils, lubricants, and other harmful materials. Equipment that is used during the course of a proposed project will be fueled and serviced in a manner that will not affect federally-protected species in the action area or their habitats;
- ✓ A Spill Prevention Control and Countermeasure (SPCC) plan will be prepared to address the emergency cleanup of any hazardous material and will be available on site. The SPCC plan will incorporate SPCC, hazardous waste, stormwater and other emergency planning requirements;
- ✓ Well-maintained equipment will be used to perform the work, and, except in the case of a failure or breakdown, equipment maintenance will be performed off site. Equipment will be inspected daily by the operator for leaks or spills. If leaks or spills are encountered, the source of the leak will be identified, leaked material will be cleaned up, and the cleaning materials will be collected and properly disposed of;
- ✓ Fueling of marine-based equipment will occur at designated safe locations adjacent to the proposed project. Spills will be cleaned up immediately using spill-response equipment;
- ✓ Project proponents will exercise reasonable precaution to protect listed species and EFH-protected species and their habitat(s) from pollutants and other deleterious materials.

Orca Whale

In a rare sighting, a pod of seven Orca killer whales were recently spotted swimming in Humboldt Bay, near the county boat ramp on the North Spit, by the 1910 day-cruise boat M/V Madaket on May 31, 2019. Even though they are considered endangered under ESA, these animals are found almost exclusively offshore in Pacific Ocean waters. Given that the work (other than potentially barging in stones) would be confined to terrestrial areas and that this species is unlikely to occur in the Bay in general, USACE has determined the proposed action would not affect the species. Other marine mammals that are more commonly found around the Humboldt Bay Jetties include harbor porpoises and California sea lions (Wear 2019). None of these animals are listed as threatened or endangered under ESA.

Table 2. ESA listed species, designated critical habitat, and impacts assessment (as of June 3, 2019).

Common Name^{^, ^}	Scientific Name	Federal Status	Potential to be Affected by Proposed Action[†]
BIRDS			
Marbled murrelet	<i>Brachyramphus marmoratus</i>	Threatened	No effect. Uncommon winter resident in action area.
Northern spotted owl	<i>Strix occidentalis courina</i>	Threatened	No effect. Inhabits old growth forests, which are not present in action area.
Short-tailed albatross	<i>Diomedea albatrus</i>	Endangered	No effect. Rare in California and not known to nest in the United States.
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	Threatened	Not likely to adversely affect. Can nest on beaches along South Spit adjacent to jetty; will consult with USFWS to ensure that this species is not adversely affected.
Yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Threatened	No effect. Inhabits wooded areas with dense cover that is not present in action area.
FISH			
Tidewater goby	<i>Eucyclogobius newberryi</i>	Endangered	No effect. Inhabits brackish bays near freshwater streams. Its habitat is several miles away from project footprint.
SONCC Coho ESU	<i>Oncorhynchus kisutch</i>	Threatened	Not likely to adversely affect. Inhabits open Pacific Ocean waters.
CC Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	Threatened	Not likely to adversely affect. Inhabits open Pacific Ocean waters.
NC Steelhead DPS	<i>Oncorhynchus mykiss</i>	Threatened	Not likely to adversely affect. Inhabits open Pacific Ocean waters.

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SDPS Green Sturgeon	<i>Acipenser medirostris</i>	Threatened	<i>Not likely to adversely affect.</i> Inhabits open Pacific Ocean waters.
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FLOWERING PLANTS

Beach Layia	<i>Layia carnosa</i>	Endangered	<i>No effect.</i> May inhabit South Spit barge landing area; flourishes where there is disturbance.
Menzies' Wallflower	<i>Erysimum menziesii</i>	Endangered	<i>No effect.</i> Inhabits upland areas outside of action area.
Western Lily	<i>Lilium occidentale</i>	Endangered	<i>No effect.</i> Inhabits wetland areas outside of action area.

MAMMALS

Fisher	<i>Pekania pennanti</i>	Proposed Threatened	<i>No effect.</i> Inhabits upland areas outside of action area.
Orcas	<i>Orcinus orca</i>	Data inadequate	<i>No effect.</i> Rarely seen in Humboldt Bay (most recent sighting was May 31, 2019); they are almost exclusively found offshore.
Blue Whale	<i>Balaenoptera musculus</i>	Endangered	<i>No effect.</i> Inhabits open Pacific Ocean waters.
Fin Whale	<i>Balaenoptera physalus</i>	Endangered	<i>No effect.</i> Inhabits open Pacific Ocean waters.
Humpback Whale	<i>Megaptera novaeangliae</i>	Endangered	<i>No effect.</i> Inhabits open Pacific Ocean waters.
Southern Resident Killer Whale	<i>Orcinus orca</i>	Endangered	<i>No effect.</i> Inhabits open Pacific Ocean waters.
North Pacific Right Whale	<i>Eubalaena japonica</i>	Endangered	<i>No effect.</i> Inhabits open Pacific Ocean waters.
Sei Whale	<i>Balaenoptera borealis</i>	Endangered	<i>No effect.</i> Inhabits open Pacific Ocean waters.
Sperm Whale	<i>Physeter macrocephalus</i>	Endangered	<i>No effect.</i> Inhabits open Pacific Ocean waters.

REPTILES

Green Sea Turtle	<i>Chelonia mydas</i>	Threatened	<i>No effect.</i> Inhabits areas outside of action area.
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East Pacific Green Sea Turtle	<i>Chelonia mydas</i>	Threatened	<i>No effect.</i> Inhabits open Pacific Ocean waters.
Olive Ridley Sea Turtle	<i>Lepidochelys olivacea</i>	Threatened/ Endangered	<i>No effect.</i> Inhabits open Pacific Ocean waters.
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Endangered	<i>No effect.</i> Inhabits open Pacific Ocean waters.

CRITICAL HABITAT (CH) AND ESSENTIAL FISH HABITAT (EFH)

Tidewater Goby	n/a	Final (CH)	<i>No effect.</i> Critical habitat is several miles away from project footprint.
SONCC Coho ESU	n/a	Final (CH)	<i>Not likely to adversely affect.</i>
CC Chinook Salmon	n/a	Final (CH)	<i>Not likely to adversely affect.</i>
NC Steelhead DPS	n/a	Final (CH)	<i>Not likely to adversely affect.</i>
SDPS Green Sturgeon	n/a	Final (CH)	<i>Not likely to adversely affect.</i>
Pacific Coast Salmon FMP	n/a	Final (EFH)	<i>No effect.</i>
Groundfish FMP	n/a	Final (EFH)	<i>May affect.</i> Construction may affect this EFH.
Coastal Pelagics FMP	n/a	Final (EFH)	<i>No effect.</i>
Western Snowy Plover	n/a	Final (CH)	<i>Not likely to adversely affect.</i> Critical habitat designated on beaches along South Spit adjacent to jetty.

† *Not likely to adversely affect = May affect, but not likely to adversely affect.*

^ *Black font = USFWS entry; ^ Red font = NMFS entry.*

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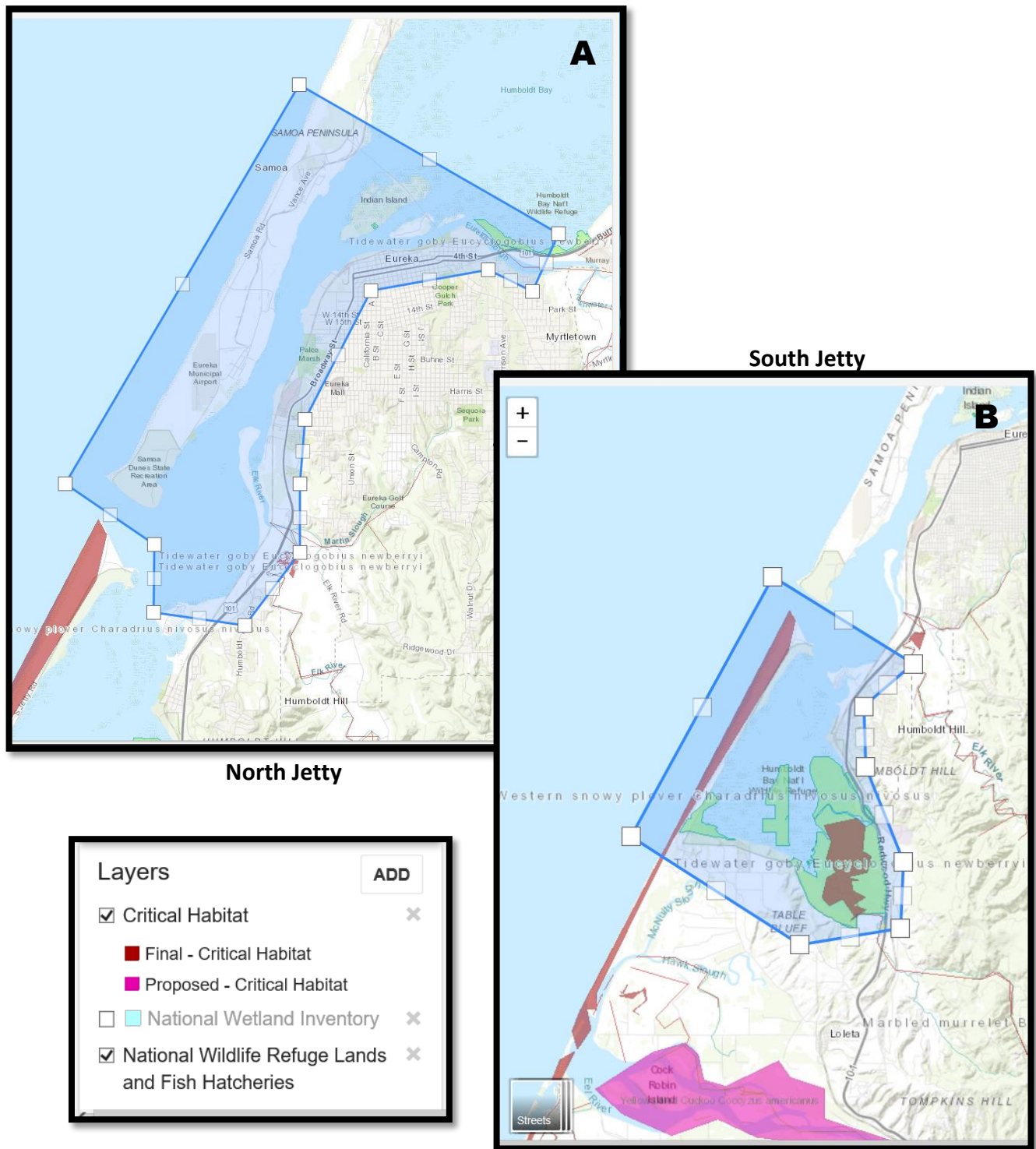


Figure 12. IPaC areas examined for listed threatened or endangered species (updated June 3, 2019).

3.3 Magnuson-Stevens Fishery Conservation and Management Act and Essential Fish Habitat (16 U.S.C. § 1802 *et seq.*)

The 1996 amendments to the Magnuson-Stevens Conservation and Management Act (MSA) set forth a number of new mandates for the NMFS, regional fishery management councils, and other federal agencies to identify and protect important commercially fished marine and anadromous fish habitat. The concept is similar to critical habitat under the Endangered Species Act. The measures that are recommended by NMFS are advisory for other agencies as opposed to mandatory.

The EFH mandates of the MSA represent an effort to integrate fisheries management and habitat management by stressing the ecological relationships between fishery resources and the environments upon which they depend. The MSA defines EFH as those waters and substrates that are necessary for fish spawning, breeding, feeding, or growth to maturity. Waters refer to aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include areas historically used by fish. Substrates refers to sediment, hard bottom, or structures underlying the waters, and associated biological communities. Necessary refers to the habitat to support a sustainable fishery and the management of the species' contribution to a healthy ecosystem. Spawning, breeding, feeding, or growth to maturity refers to the full life cycle of a species.

USACE has determined that the proposed action may affect Pacific Groundfish EFH in the action area through localized disturbance and increases in turbidity, especially near the benthos, and possible crushing events of prey organisms. These effects will be temporary and localized to the jetty, and there is a possible positive impact to areas for eelgrass to colonize once the project is complete. USACE has determined the proposed action would not affect EFH covered under the Pacific Coast Salmon FMP or Coastal Pelagic Species FMP due to the very small and localized disturbances to habitat in the water column.

The USACE has submitted an EFH assessment to NMFS for this project (Appendix I). Through the EFH consultation process, USACE will consider any conservation recommendations proposed by NFMS for the Pacific Groundfish EFH.

3.4 Coastal Zone Management Act (16 U.S.C. § 1451 *et seq.*)

The Coastal Zone Management Act of 1972 (CZMA) requires that federal activities in the coastal zone must be consistent with requirements established by the coastal management boards of the states in which the activities take place. For California, these requirements are based on the California Coastal Act of 1976. The USACE's determinations of consistency of the proposed project with provisions of the California Coastal Act are presented in Appendix E.

The USACE obtained a Negative Determination from the California Coastal Commission (CCC) (ND-0025-19), demonstrating consistency with the California Coastal Zone Management program pursuant to CZMA, on September 4, 2019 (Appendix F).

3.5 Clean Air Act (42 U.S.C. § 7401 *et seq.*)

The Clean Air Act (CAA) protects and enhances the quality of the air resources within the U.S., and protects public health from both long and short-term exposure to air contaminants. Under the CAA, the US Environmental Protection Agency (EPA) established a set of ambient air quality standards. In California, the California Air Resources Board established additional standards that are, in some cases, more stringent than those set by USEPA. As in all states, California has prepared, and is the primary enforcing authority for, a State Implementation Plan (SIP), which is a blueprint for achieving and maintaining the national and state ambient air quality standards.

Section 118(a) of the CAA provides that all federal agencies are subject to all state and local laws, regulations, and standards for air pollution control if the state and local laws are at least as stringent as those at the federal level, and provided that they have not been set aside by federal courts. Section 176(c) of the CAA provides that no federal agency shall engage in any activity that does not conform to a USEPA-approved SIP. Those requirements must be met by obtaining all necessary permits and approvals from state and local agencies prior to the start of project work.

The work for this project is to take place principally within the North Coast Unified Air Quality Management District (AQMD) which is listed as "attainment" or "unclassified" for all the federal and state ambient air quality standards with the exception of the state 24-hour particulate (PM₁₀) standard in Humboldt County only. In the case of alternatives that source stones from the quarry in Redding, CA, emissions must meet the standards for Shasta County AQMD which is listed as "attainment" or "unclassified" for all the federal and state ambient air quality standards with the exception of ozone which is in non-attainment according to the California standard. Alternatives that source stones from Catalina Island must meet the standards for the South Coast AQMD which has established daily significance thresholds. The South Coast AQMD daily significance thresholds are also used for ensuring de minimis thresholds are not exceeded for other air quality management districts, since South Coast AQMD is the only AQMD in California that has published daily significance thresholds and previously have been found to be acceptable by other AQMDs.

The 1990 CAA amendments require federal agencies proposing projects to complete an analysis to determine whether the project conforms to the approved SIP. The USEPA promulgated final guidelines on preparation of the conformity analysis in 1993. The USEPA's final rule does not require a conformity analysis for proposed projects that are in attainment areas for national ambient air quality standards.

The footprint of the construction work for the project is within the jurisdiction of the North Coast Unified AQMD, but also includes Shasta County AQMD for alternatives 1 and 3 which source stones from Redding CA, and the South Coast AQMD for alternative 4 which sources stones from Catalina Island. In order to ensure emissions do not exceed thresholds for any air quality management district, emissions from the worst case scenario (i.e. the longest truck route) for each alternative were calculated and proportionally attributed to each district according to where the work would be performed, allowing for a comparison to each districts exceedance thresholds. Therefore, each activity within each air quality management

district was quantified for emissions, which can span multiple districts for 1 alternative. Calculations for this analysis are shown in Appendix D, and the effects analysis is presented in section 4, below. Based on this analysis, USACE has determined that under all action alternatives, temporary short-and long-term air impacts will be below de minimis levels. The proposed project has thus been determined to conform with Section 176(c)(1) of the Clean Air Act.

3.6 Clean Water Act (33 U.S.C. §1251 *et seq.*)

Discharges into waters of the U.S., which includes placement of rock below the high water line for this project, are covered by the Clean Water Act of 1972 (CWA). Such activities must comply with section 401 of the CWA of 1977, as amended, by receiving a water quality certification (WQC), or a waiver from Waste Discharge Requirements (WDRs). Regulatory control of water quality is delegated to local Regional Water Quality Control Boards, which, for this project is covered by their North Coast office (NCRWQCB).

USACE received a waiver (# R1-2017-0039) on August 29, 2019 (Appendix F), from the NCRWQCB, pursuant to section 401 of the Clean Water Act, for water quality coverage under existing Waste Discharge Requirements. In this regard, there are several water quality concerns relating to concrete pouring and certain rock placement that would require Best Management Practices (BMPs). These BMPs include covering wet concrete with sheet plastic to keep the cement dry, using a quick-dry cement sealant, and having a cement dust control plan in place.

Under Section 404 of the Clean Water Act, USACE is given authority to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. For common activities USACE holds nationwide permits which can be attributed to projects that meet the requirements of the permit without the need for a separate individual permit to be issued. As the proposed project is for maintenance, “Nationwide Permit 3 – Maintenance” (NWP-3) will be used to satisfy Section 404(b)(1). NWP-3 includes the repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or most recently authorized modification. The USACE prepared a 404 analysis to confirm the consistency of the proposed action with NWP-3 which is included as Appendix G.

3.7 Marine Mammal Protection Act (16 U.S.C. § 1361 *et seq.*)

The Marine Mammal Protection Act of 1972 provides protection for marine mammals. Harbor seals, sea lions and sea otters are the most likely marine mammals that might be encountered in the proposed action area. Because the jetties present these animals with relatively steep vertical relief, it is unlikely that they would haul-out on the jetty rocks. Instead, they would haul-out on buoys in the Entrance Channel or other Bay channels, or be found on nearby beaches. Their high visibility make them easy to spot, and with their great mobility they would easily avoid areas of construction work. Consequently, marine mammals are not likely to be affected by this project.

3.8 National Historic Preservation Act (16 U.S.C. § 469 *et seq.*)

The National Historic Preservation Act of 1966 (NHPA) set forth national policy for recognizing and protecting historic properties. It established the National Register of Historic Places (NRHP), and created a State Historic Preservation Officer (SHPO) in each state and the Advisory Council on Historic Preservation (ACHP) of the Executive Branch. Under Section 106 of the act, federal agencies are required to take into account the effects of their undertakings on historic properties and provide the SHPO, Native American tribes, and interested parties an opportunity to comment on those undertakings.

The implementing regulations of Section 106 published by the ACHP, “Protection of Historic Properties,” are found in 36 C.F.R. Part 800. The goal of the Section 106 review process is to identify historic properties that may be impacted by the undertaking, and seek ways to avoid the adverse effects, or when necessary, develop treatment measures (i.e., mitigation measures) to reduce the level of adverse effect. When an agency determines there is an adverse effect on historic properties, the ACHP is contacted to request comment. Historic properties are defined in federal law as those properties that are listed in, or meet the criteria for listing in, the NRHP. The criteria for determining National Register eligibility are found in 36 C.F.R. Part 60. Generally, cultural resources that exhibit information important to prehistory or history, and possess various aspects of integrity, would be eligible for inclusion in the NRHP as historic properties. Amendments to the Act (1986 and 1992) have strengthened the provisions for Native American consultation and their participation in the Section 106 review process.

Humboldt Bay has been designated as the Humboldt Harbor Historical District (California State Landmark No. 882). Although the North and South Spits are considered archaeologically sensitive areas (USACE 1991), no archaeological sites have been reported from the southern tip of the North Spit and the northern tip of the South Spit. The North and South Jetties, themselves, being over 100 years old, qualify for inclusion in the NRHP and the Historic American Engineering Record. In 1977, the two jetties were declared California Historic Civil Engineering Landmarks (Costa and Glatzel 2002).

The USACE has consulted with tribes that have ethnographic, ancestral, and cultural ties to the project area. Three Wiyot tribes expressed interests and concerns about potential effects to historic properties. The USACE invited their comments and recommendations regarding potential adverse effects to historic properties near the project APE. A meeting was held in September 2019 with three federated Wiyot Tribal Historic Preservation Officers. As a result of that meeting, the project action area was refined and reduced to avoid adverse effects to traditional cultural properties.

The USACE has determined that the jetties are eligible for the NRHP but that, pursuant to 36 CFR § 800.5 (b)(1), no historic properties would be adversely affected by any of the proposed action alternatives. To avoid any adverse effect to historic properties or cultural resources, the following measures will be implemented:

- ✓ No work is proposed outside the jetties pre-designated construction and staging areas.

- ✓ Interested tribes will be informed by USACE prior to the beginning of construction and tribal monitors will be allowed to observe construction activities when requested.
- ✓ Cultural resources, including buried or isolated archaeological sites, endangered plants, are non-renewable and sensitive; it is possible that they exist obscured from view by blowing sand, wind and rain, intense waves, or beneath vegetation. There is always the remote possibility that previously unknown cultural resources may be encountered. Therefore, the following precautionary measures will be implemented: If cultural resources are encountered at any time all construction shall be temporarily stopped at that location (including a reasonable distance around the site) and redirected to another area away from the discovery and a qualified cultural resources specialist retained to evaluate the find. This evaluation would follow Federal standards and guidelines. Additional site investigation would be required in addition to consultation with participating agencies. If historic properties were identified, then discovery procedures pursuant to 36 CFR 800.13 would be conducted and mitigation of adverse effects in consultation with participating agencies would be carried out in addition to site specific treatment during construction.

The USACE is currently consulting with the State Historic Preservation Office (SHPO) and has documented the area of potential effects (APE) and the determination of no adverse effect to historic properties. USACE has requested the SHPO's concurrence. The consultation letter to the SHPO is included as Appendix J.

3.9 Archaeological and Historic Preservation Act 16 U.S.C. § 469 *et seq.*)

The Archaeological and Historic Preservation Act of 1974 (AHPA) provides for the preservation of historic and archaeological data that might otherwise be lost or destroyed because of any federal construction project. The AHPA authorizes the lead federal agency of a project, or the Secretary of the Interior, to undertake recovery or preservation of such data. Federal project funds, up to one percent of the project cost, may be used, or the lead agency may request the Secretary of the Interior to conduct the desired measures. In the event that significant cultural resources are encountered during the proposed construction activities, and they are determined to be historic or pre-historic properties, treatment measures to recover important data could be authorized under the AHPA.

4 Affected Environment and Environmental Consequences

4.1 Affected Environment

The affected environment, for purposes of this EA analysis, are areas of the Humboldt Bay Entrance Channel and the North and South Jetties that will be repaired and/or reconstructed; in addition, the affected environment includes any areas potentially affected by the transport or storage of construction equipment, or of newly-quarried rock. In the text, "effects" and "impacts" are used interchangeably, and affected environment is also referred to as the "project footprint."

4.2 Environmental Consequences

4.2.1 Physical/Chemical Characteristics and Potential Impacts

- (X) Substrate:** The substrate adjacent to the project footprint consists of sandy beaches and dunes; beneath the rock jetties are intertidal and subtidal communities of green, red, and brown algae, as well as other invertebrates. Transporting by truck newly-quarried rock to project sites (Alternatives 1-3), placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap could result in minor and temporary effects to the substrate. Rock brought in by barge (Alternative 4) could, in theory, result in erosion of the sandy beaches where stone is off-loaded. For all action alternatives, resetting rocks might locally disturb algal and other invertebrate communities on stones in the water, though, the impacts would be minor and temporary.
- (X) Currents, circulation or drainage patterns:** The ocean system near the jetties is wave-dominated, with no particular current or circulation patterns. Transporting by truck newly-quarried rock to project sites (Alternatives 1-3), placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap will not, in any way, disturb currents, circulation or drainage patterns. Rock brought in by barge (Alternative 4) will likewise have no impact on these particular characteristics. Most repairs will be done above the MLLW tide line. For all action alternatives, the effects of the repairs will be to restore the damaged jetties to their original design dimensions, with no adverse impacts.
- (X) Suspended particulates and turbidity:** Water everywhere inside the Entrance Channel, and therefore around the jetties, is like ocean water, largely clear of suspended particulates and turbidity. Transporting by truck (Alternatives 1-3), or barge (Alternative 4), newly-quarried rock to project sites, placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap will not result in increased turbidity because much of the repair work will be done dry, above the MLLW tide line, and only clean stones will be placed. Those repairs that require stones to be fished out of the water to be reset on the existing jetty will be done with the utmost care, one stone at a time, so as to create minimal turbidity. Any turbidity created would be minor and very temporary, ceasing after the movement or placement of an individual stone. Among the BMPs, there will be a dust control plan to control air-borne dust from entering waterbodies and causing turbidity, and if there is minor dredging or side-casting of sediment, turbidity will also be minor and temporary. With proposed avoidance measures, for all action alternatives, effects are insignificant and temporary.
- (X) Water quality (temperature, salinity, and other parameters):** Water everywhere inside the Entrance Channel, and therefore around the jetties, is like ocean water—in terms of temperature, salinity, and other parameters. Transporting by truck (Alternatives 1-3), or barge (Alternative 4), newly-quarried rock to project sites, placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap will not violate any clean water standards. The construction contractor will be required to prepare and adhere to an Environmental Protection Plan (EPP) including a spill prevention plan and storm water pollution prevention plan to prevent discharge to waterbodies and protect

water quality. The EPP will be required to include BMPs for the handling of hazardous chemicals and for responding to spills of hazardous materials during construction. For all action alternatives, impacts to water quality would be insignificant and temporary.

- () **Flood control functions:** Not applicable.
- (X) **Storm, wave and erosion buffers:** The jetties are subject to near constant “hammering” from severe wave action, particularly during winter months when storms frequently form. Transporting by truck (Alternatives 1-3), or barge (Alternative 4), newly-quarried rock to project sites, placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap will allow for the repair and reconstruction of existing stone structures. The purpose and need of the project is to bring the jetties back to their original design dimensions and, if necessary, to restore structural integrity, thereby enabling the jetties to protect (buffer) the channel and surrounding lands from future storms and severe wave action. For all action alternatives, the project will improve the long-term buffering capability of the jetties, with no adverse impacts.
- (X) **Erosion and accretion patterns:** Lands adjacent to the jetties, characterized by sandy beach and dunes, exhibit no discernible erosion or accretion patterns, separate from their interaction with the nearby Pacific Ocean. Transporting by truck (Alternatives 1-3), or barge (Alternative 4), newly-quarried rock to project sites, placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap will not impact erosion (except to slightly diminish loss of sand to the Entrance Channel), or alter accretion patterns. This is because the jetties are not being modified, but instead are being restored to their original design dimensions. To avoid impacting the substrate, the contractor will be instructed to carefully avoid working around any vegetated dune areas, and sensitive areas will be fenced off. For all action alternatives, effects are insignificant and temporary.
- () **Aquifer recharge:** Not applicable.
- () **Baseflow:** Not applicable.

4.2.2 Biological Characteristics and Potential Impacts

- (X) **Special aquatic sites (wetlands, mudflats, coral reefs, pool and riffle areas, vegetated shallows, sanctuaries and refuges, as defined in 40 C.F.R. 40-45):** Intertidal and subtidal portions of the two jetties support green, red, and brown algae communities, along with invertebrates that grow on underwater rocks. No other special aquatic sites (as defined) fall within the project footprint. Transporting by truck (Alternatives 1-3), or barge (Alternative 4), newly-quarried rock to project sites, placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap could slightly disturb the algal communities, which would then quickly regenerate. For all action alternatives, effects are insignificant and temporary.
- (X) **Habitat for fish and other aquatic organisms:** Because of the high energy ocean/ wave environment on the channel side of the jetties, there is little in the way of habitat for fish and other aquatic organisms. Transporting by truck (Alternatives 1-3), or barge

(Alternative 4), newly-quarried rock to project sites, placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap will not significantly impact fish habitat and other aquatic organisms because most of the repairs will be done dry, well above the MLLW tide line. For repairs done in water, it is reasonable to assume that fish, or marine mammals, being highly mobile, would avoid areas of active construction, and that subtidal algal and immobile invertebrate communities which are disturbed by the construction would quickly regenerate. The impact avoidance measures described in Section 3 for listed fish species will be implemented and will also protect habitat for fish and aquatic organisms. Thus, for all action alternatives, the effects are expected to be temporary and insignificant.

- (X) **Wildlife habitat (breeding, cover, food, travel, and general):** The jetties serve as temporary roosts for various seabirds, providing food from invertebrates that grow on underwater stones. Transporting by truck (Alternatives 1-3), or barge (Alternative 4), newly-quarried rock to project sites, placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap, is not expected to significantly disturb wildlife habitat given the existing heavy use of the north and south spit for recreation and the vessel traffic transiting in and out of the jetties under existing conditions. During construction, only a small area, where the repairs are being done, and that gradually moves across the jetties, would not be available to seabirds for roosting or for other small mammals. Given the significant quantity of nearby habitat available and the temporary nature of the proposed action these effects would be minor. For all action alternatives, impacts are expected to be less than significant.
- (X) **Endangered or threatened species:** See ESA compliance (section 3.2 of this document), for more detail on T&E species and USACE determinations. Designated critical habitat (potential nesting areas) for and occurrence of the snowy plover occurs on the South Spit (Figure 14) adjacent to the project footprint (a nesting pair has been spotted within 250' of the jetty). Other federally-listed species including, beach layia, salmonids, and green sturgeon may occur in the vicinity of the project action areas (as described in section 3.2). USACE has proposed appropriate avoidance/minimization measures for applicable species and determined that the proposed project will thus have no effect or may affect, but is not likely to adversely affect federally listed species (see section 3.2). Thus, for all action alternatives, effects to endangered or threatened species are expected to be less than significant with the proposed avoidance measures.
- (X) **Biological availability of possible contaminants in dredged or fill material:** The fill material currently making up the jetties is clean rock, or concrete with embedded wooden railroad ties and steel rail. This fill is completely free of contaminants. Transporting by truck (Alternatives 1-3), or barge (Alternative 4), newly-quarried rock to project sites, placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap will not introduce any contaminants, biologically available or otherwise, into Humboldt Bay waters, because the new rock that is placed will be completely clean. For all action alternatives, effects are non-existent.

4.2.3 Human Use Characteristics and Potential Impacts

- () **Existing and potential water supplies; water conservation:** Not applicable.
- (X) **Recreational or commercial fisheries:** Recreational and commercial fishing is an important part of the Humboldt Bay economy. Transporting by truck (Alternatives 1-3), or barge (Alternative 4), newly-quarried rock to project sites, placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap will result in temporary dislocations during the construction phase, in that for safety reasons, the entire area of the jetties will be closed to the public including anglers who utilize the jetties for fishing. However, this will be a temporary inconvenience, and is necessary for public safety. The USACE will provide a copy of the draft EA to California Department of Fish and Wildlife, and will notify them well in advance of Jetty closure so they can communicate the closure to anglers that may use the jetties. When the jetties are restored to their original design dimensions, they will aid commercial and recreational fishing vessels by providing further protection from storms and severe wave action. For all action alternatives, the effects will be temporary, and less than significant.
- (X) **Other water-related recreation:** The jetties are used by anglers for fishing off them, and they make safe other recreational pursuits such as sailing, kayaking, and surfing. Under all action alternatives, there may be some recreational impacts associated with less parking and diminished accessibility due to the location of the staging areas and limits of construction. For the north jetty, the staging area is proposed to occupy a portion of the public parking area. However, the staging area at the North Jetty will not fully block access, the area immediately north of the staging area outlined in Figure 11 will remain open to the public. On the South Jetty the parking area and restroom facility adjacent to the jetty will likely be closed to the public during the construction season. There is a small dirt pull off at the end of the construction limits of work just prior to the split of the South Jetty access road that vehicles could use for parking purposes instead. Moreover, the construction limits and staging areas are expected to be utilized only during the construction season (approximately March-October). Should construction at one jetty or the other require more than one season, the limits and staging area for that jetty, and the associated equipment stored there, would be removed and then be re-established the following season, opening the full area to public access outside of the construction season.

Transporting by truck (Alternatives 1-3) newly-quarried rock to project sites will be conducted from the land side so impacts to other on water-recreation are expected to be minimal. Transporting newly quarried rock by barge (Alternative 4), could have temporary impacts to waterborne recreation due to additional vessel traffic. However, given the high existing level of vessel traffic in and out of the jetties and around the Bay for commercial vessel operations associated with the port, this additional vessel traffic would be expected to have a less than significant impact. Under all action alternatives, placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap would be conducted from land so impacts to waterborne recreation would be minimized. Effects to water-related recreation would be a temporary and cease with the completion of the repairs.

When the jetties are restored to their original design dimensions, they will provide further protection from storms and severe wave action, thereby having the beneficial effect of making recreation safer. Moreover, as part of the construction activities, USACE will replace signs around the jetties that warn the public of the safety risk of large waves. Replacing the existing degraded signage will also improve public safety around the jetties. For all action alternatives, the effects to water-related recreation would be less than significant during construction and beneficial post construction.

- (X) **Aesthetics of the aquatic ecosystem:** The Humboldt Bay surroundings, including the jetties, consists of picturesque vistas in almost all directions. Transporting by truck (Alternatives 1-3), or barge (Alternative 4), newly-quarried rock to project sites, placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap will result in jetties that are restored to their original design dimensions. Much of the proposed construction activity would be visible from nearby beaches or sand dunes, and by boats in the immediate vicinity, where it would likely serve as an interesting, albeit temporary, change of scenery. For all action alternatives, there is no significant impact to aesthetics.
- () **Parks, national and historic monuments, national seashores, etc.:** Not applicable.
- (X) **Traffic/transportation patterns:** The network of roads between the possible quarries (Mountain Gate and Liscom Hill) and Humboldt Bay are largely rural, and therefore less likely to congest due to the additional burden of trucking in rock to the jetty project sites. Specifically, transporting by truck newly-quarried rock to project sites (Alternatives 1-3) would entail some 2000 individual truck trips (about 1000 trips per jetty) over the two construction seasons (FY20 and FY21). The construction contractor will be required to prepare a traffic management plan (TMP), including use of flaggers and synchronized departure times if applicable, to avoid serious traffic congestion and protect public safety. To prepare the TMP, the contractor will be required to conduct a pre-work site visit and document the road conditions as well as determine appropriate usage parameters (e.g. whether the width of the roads is sufficient to accommodate two passing trucks, etc.). At the end of construction, the contractor will be required to repair any damage to the roads and ensure the roads are left in existing or better condition. To the extent that Alternatives 1-3 can be kept consistent with existing traffic flow patterns and intensity, impacts should be minor and temporary. Rock brought in by barge (Alternative 4) would mostly avoid use of roads so impacts would be even less than expected under Alternatives 1-3. Under all alternatives, impacts would be less than significant given the implementation of the TMP and the requirement to return roads to existing condition.

Vessel transportation and traffic are discussed in the “Navigation and Safety” section below.

- (X) **Energy consumption or generation:** In absolute terms, this project requires substantial energy consumption (e.g. fuel usage) in transporting by truck (Alternatives 1-3), or barge (Alternative 4), newly-quarried rock to project sites, placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap. Conversely, the project, once operational, would not generate or consume energy. However, when the proposed action is

looked at regionally, the amount of energy consumption is quite small. Transport of stone by barge (Alternative 4) would likely be slightly more energy efficient than transport by truck (Alternatives 1-3). For all action alternatives, the effects of energy consumption are insignificant and would occur only during construction activities.

(X) Navigation and Safety: Humboldt Bay is the only deep water bay between San Francisco, California and Coos Bay, Oregon, and therefore, as a port, it handles a large volume of commerce coming through the Bar and Entrance Channel, between the two jetties. Due to its importance, Humboldt Bay has a United States Coast Guard (USCG) search and rescue air station located near the North Jetty. Transporting by truck (Alternatives 1-3), or barge (Alternative 4), newly-quarried rock to project sites, placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap will result in jetties that have been repaired and restored to their original design dimensions. This will make navigation through the Bar and Entrance Channel safer than the no-action alternative which will result in jetties that eventually become severely degraded. Under Alternatives 1-3, rock would be transported primarily by truck. Should barging of rock be necessary under Alternatives 1-3 or as in Alternative 4, additional vessel traffic would occur in Humboldt Bay and around the jetties. However, given the high existing level of vessel traffic in and out of the Entrance Channel and around the Bay for commercial vessel operations associated with the port, this additional vessel traffic would be expected to be a less than significant increase. The barge vessels would follow standard vessel safety and navigation communication procedures. Under all alternatives, construction activities will be conducted from the land side, and as such, will not impede any boat traffic. For all action alternatives, the impacts to navigation and safety are less than significant and temporary.

(X) Air quality:The construction contractor will be required to prepare an EPP as part of the construction effort and this would include a dust control plan to prevent excessive air-borne dust. The emissions associated with the proposed action alternatives are evaluated below and have been determined to be below applicable de minius thresholds.

Alternative 1. Air emissions estimates and assumptions are included in Appendix D. Results are shown below in Table 3 and Table 4 for Alternative 1. This alternative sources stones from within the Shasta County AQMD and transports them via truck to the jetty to use for construction. Air quality impacts associated with Alternative 1 are not anticipated to exceed daily South Coast AQMD emissions thresholds or the General Conformity thresholds.

Table 3. Air Emissions from Alternative 1 North Jetty construction that are within the North Coast Unified AQMD, including project construction and transport of stones by truck.

Table 3. Air Emissions from Jetty Construction and Transport of Stones by Truck within North Coast AQMD						
	ROG	CO	NOx	SOx	PM10	PM2.5
Peak Daily Emissions (lbs/day)	13.066	65.681	98.762	0.268	4.610	3.995
SCAQMD Daily Significance Thresholds (lbs/day)	75	550	100	150	150	55
Total Project Emissions (Tons)	0.980	4.926	7.407	0.020	0.346	0.300
SCAQMD Yearly Significance Thresholds (Tons/yr)	100	100	100	100	100	100

Table 4. Air Emissions from Alternative 1 that are within the Shasta County AQMD, includes only transport of stones.

Table 4. Air Emissions from Transport of Stones by Truck within Shasta AQMD						
	ROG	CO	NOx	SOx	PM10	PM2.5
Peak Daily Emissions (lbs/day)	0.950	4.467	10.974	0.032	0.555	0.443
SCAQMD Daily Significance Thresholds (lbs/day)	75	550	100	150	150	55
Total Project Emissions (Tons)	0.071	0.335	0.823	0.002	0.042	0.033
SCAQMD Yearly Significance Thresholds (Tons/yr)	100	100	100	100	100	100

Alternative 2. Air emissions estimates and assumptions are included in Appendix D. Results are shown in Table 5. This alternative uses all the same methodologies for construction as Alternative 1 but has a smaller distance for transporting stones from the quarry and only takes place within the Shasta County Air Quality Management District. Air quality impacts associated with Alternative 2 are not anticipated to exceed daily South Coast AQMD emissions thresholds or the General Conformity thresholds.

Table 5. Air Emissions from Alternative 2 that are within North Coast Unified AQMD, includes construction and transport of stones.

Table 5. Air Emissions from Jetty Construction and Transport of Stones by Truck within North Coast AQMD						
	ROG	CO	NOx	SOx	PM10	PM2.5
Peak Daily Emissions (lbs/day)	11.928	60.332	85.621	0.230	3.946	3.464
SCAQMD Daily Significance Thresholds (lbs/day)	75	550	100	150	150	55
Total Project Emissions (Tons)	0.895	4.525	6.422	0.017	0.296	0.260
SCAQMD Yearly Significance Thresholds (Tons/yr)	100	100	100	100	100	100

Alternative 3. Air emissions estimates and assumptions are included in Appendix D. Results are shown below in Table 6 and Table 7 for Alternative 3. This alternative sources stones from quarries located in both Shasta and Humboldt Counties, and is a hybrid of Alternatives 1 and 2 with contractor discretion for how many to source from each quarry depending on market drivers. Emissions for this alternative were calculated assuming that half the stones would be from the quarry located in Shasta County and the other half from the quarry located in Humboldt County. Air quality impacts associated with Alternative 3 are not anticipated to exceed daily South Coast AQMD emissions thresholds or the General Conformity thresholds.

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Table 6. Air Emissions from Alternative 3 that are within the North Coast Unified AQMD, including project construction and transport of stones.

Table 6. Air Emissions from Jetty Construction and Transport of Stones by Truck Within North Coast AQMD						
	ROG	CO	NOx	SOx	PM10	PM2.5
Peak Daily Emissions (lbs/day)	12.476	62.908	91.948	0.248	4.266	3.720
SCAQMD Daily Significance Thresholds (lbs/day)	75	550	100	150	150	55
Total Project Emissions (Tons)	0.936	4.718	6.896	0.019	0.320	0.279
SCAQMD Yearly Significance Thresholds (Tons/yr)	100	100	100	100	100	100

Table 7. Air Emissions from Alternative 3 that are within the Shasta County AQMD, includes only transport of stones.

Table 7. Air Emissions from Transport of Stones by Truck Within Shasta AQMD						
	ROG	CO	NOx	SOx	PM10	PM2.5
Peak Daily Emissions (lbs/day)	0.457	2.151	5.284	0.015	0.267	0.213
SCAQMD Daily Significance Thresholds (lbs/day)	75	550	100	150	150	55
Total Project Emissions (Tons)	0.034	0.161	0.396	0.001	0.020	0.016
SCAQMD Yearly Significance Thresholds (Tons/yr)	100	100	100	100	100	100

Alternative 4. Air emissions estimates and assumptions are included in Appendix D. Results are shown in Table 8 - 10. Stones would be loaded onto a barge at Catalina Island and then transported to Humboldt Jetty and offloaded then placed to build the jetty. Emissions associated with road repairs were found to exceed the daily threshold for NOx emissions when combined with those from the barge and tug boats. Therefore, in order to ensure that the South Coast AQMD Daily Threshold for NOx is not exceeded, road repairs will not happen simultaneously while the barge and tug boat are making a delivery of stones to the jetty or at any time they are within the North Coast Unified AQMD. Air quality impacts associated with Alternative 4 are not anticipated to exceed daily South Coast AQMD emissions thresholds or the General Conformity thresholds.

Table 8. Air Emissions for Alternative 4, South Coast AQMD- Barging from Catalina Island to Sea.

Table 8. Air Emissions from Transport of Stones by Barge from Catalina Island to Sea						
	ROG	CO	NOx	SOx	PM10	PM2.5
Peak Daily Emissions (lbs/day)	0.357	6.169	7.252	1.775	0.431	0.418
SCAQMD Daily Significance Thresholds (lbs/day)	75	550	100	150	150	55
Total Project Emissions (Tons)	0.003	0.046	0.054	0.013	0.003	0.003
SCAQMD Yearly Significance Thresholds (Tons/yr)	100	100	100	100	100	100

Table 9. Air Emissions for Alternative 4, North Coast Unified AQMD- Barging from Sea to Humboldt Jetty, construction included.

Table 9. Air Emissions from Jetty Construction and Transport of Stones from Ocean to Jetty						
	ROG	CO	NOx	SOx	PM10	PM2.5
Peak Daily Emissions (lbs/day)	5.661	41.431	56.211	7.179	2.748	2.572
SCAQMD Daily Significance Thresholds (lbs/day)	75	550	100	150	150	55
Total Project Emissions (Tons)	0.425	3.107	4.216	0.538	0.206	0.193
SCAQMD Yearly Significance Thresholds (Tons/yr)	100	100	100	100	100	100

Table 10. Air Emissions for Alternative 4, North Coast Unified AQMD- South Jetty Access Road Repairs.

Table 10. Air Emissions from South Jetty Access Road Repairs						
	ROG	CO	NOx	SOx	PM10	PM2.5
Peak Daily Emissions (lbs/day)	8.488	44.288	57.517	0.147	2.816	2.496
SCAQMD Daily Significance Thresholds (lbs/day)	75	550	100	150	150	55
Total Project Emissions (Tons)	0.637	3.322	4.314	0.011	0.211	0.187
SCAQMD Yearly Significance Thresholds (Tons/yr)	100	100	100	100	100	100

Air Quality Conformity Determination: Under all action alternatives, temporary short- and long-term air impacts will be below de minimis levels with the proposed minimization measures where applicable. The proposed project has been determined to conform with Section 176(c)(1) of the Clean Air Act.

- (X) **Noise:** Humboldt Bay is an ocean environment with ambient noise mostly created by crashing waves. With a height of 2m, crashing waves can create noise with a sound pressure level of 78 dB (Bolin and Abom 2010); similar to that of metropolitan, urbanized areas which can be as high as 80 dB (DOT 2017). Noise from the project would mainly be associated with the transport and placing of newly-quarried rock (Alternatives 1-3), and resetting of old rock, with most construction equipment generating a pressure level of 85 dB at 50 ft from the source, comparable to the ambient noise level of 78 dB for 2 m crashing waves. Noise from construction activities would diminish with increasing distance from those activities. Trucks would be equipped with mufflers that meet state or local standards for noise suppression to minimize any effects from noise. Transporting new rock from the staging area and placing it on the jetty would create noise similar to background noise levels. Transportation by barge (Alternative 4) to the site would not be discernible due to distance and background noise levels. Snowy plover habitat is located near the South Jetty. With a distance of 600 feet from construction equipment, as per a standard buffer used for construction projects, effects to snowy plovers would be less than significant and only take place during construction of the jetty. Table 11 below shows typical construction noises and how they diminish with distance. The action alternatives would therefore entail temporary and less than significant impacts from noise.

Table 11. Noise Levels Generated by Typical Construction Equipment

Equipment	Sound Pressure Level "Noise Level" at 50 ft (dB)	Sound Pressure Level "Noise Level" at 300 ft (dB)	Sound Pressure Level "Noise Level" at 600 ft (dB)	Typical Duty Cycle
Auger Drill Rig	85	69	63	20%
Backhoe	80	64	58	40%
Compactor (ground)	80	64	58	20%
Concrete Mixer Truck	85	69	63	40%
Concrete Pump	82	66	60	20%
Crane (mobile or stationary)	85	69	63	20%
Dozer	85	69	63	40%
Dump Truck	84	68	62	40%
Excavator	85	69	63	40%
Front End Loader	80	64	58	40%
Generator (25 KVA or less)	70	54	48	50%
Generator (more than 25 KVA)	82	66	60	0%
Grader	85	69	63	40%
Pumps	77	61	55	50%
Scraper	85	69	63	40%
Tractor	84	68	62	40%

KVA = kilovolt amps
Source: FHWA

Calculation of Sound Pressure Level (dB):

$$SPL_2 = SPL_1 - 10\text{LOG}(r_2/r_1)$$

Where:

SPL_2 = sound pressure level (dB) at distance r_2
 SPL_1 = sound pressure level (dB) at distance r_1
 r_2 = distance from source
 r_1 = distance from source
 $r_1 < r_2$

(X) **Historic properties:** The North and South Humboldt Jetties, being more than 100 years old, and largely maintaining their “historic integrity,” meet the Federal criteria for NRHP eligibility. Cultural resources, that might be present within the project footprint, can be defined as the remains of previous human activity that either are archeological (*e.g.*, artifacts found on or within the ground) or historical (*e.g.*, standing architectural features, structures, or shipwrecks) in nature. Transporting by truck (Alternatives 1-3), or barge (Alternative 4), newly-quarried rock to project sites, placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap will result in repaired jetties that are restored to their original design dimensions. The USACE is currently consulting with the SHPO and has consulted with the Wiyot tribes as described in Section 3.8. The USACE will implement the avoidance measures described in Section 3.8 and has determined that there will be no adverse effect to historic properties within the APE (Appendix J).

() **Land use classification:** Not applicable.

- (X) Economics:** The Humboldt Bay region has a population of about 130,000. There is a local perception that the economy is in decline, but there are signs of growth in employment in sectors such as manufacturing and construction. The jetty repair project will contribute to the economy by adding construction jobs and by facilitating more waterborne commerce. Transporting by truck (Alternatives 1-3), or barge (Alternative 4), newly-quarried rock to project sites, placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap will likely result in several dozen temporary jobs being created during the FY20 and FY21 construction seasons. Repairing the jetties, such that they are restored to their original design dimensions, will enhance the navigability and safety of the Entrance Channel for all vessels, including fishing boats. This will strengthen businesses dependent upon waterborne commerce. Economic trends will be improved compared to the no-action alternative of severely degraded jetties, and for all action alternatives, short- and long-term impacts would be positive.
- () Prime and unique farmland (7 C.F.R. Part 658):** Not applicable.
- () Food and fiber production:** Not applicable.
- () Mineral needs:** Not applicable.
- (X) Consideration of private property:** After careful analysis by USACE real estate, it has been determined that the project footprint consists almost exclusively of federal- and state-owned lands that are collectively managed by the Bureau of Land Management (BLM). Transporting by truck (Alternatives 1-3), or barge (Alternative 4), newly-quarried rock to project sites, placing this stone and/or resetting pre-existing stone on the jetties, and pouring a new concrete cap will result in repaired jetties that are restored to their original design dimensions. For all action alternatives, the proposed repair work should not impinge upon the property rights of any private land owner, and in the highly unlikely event that a private property owner is found to be affected by the proposed project, consultations with that owner(s) will be initiated as soon as possible. The effects, therefore, are both insignificant and temporary.
- () Environmental Justice:** Not applicable.
- () Other:** Not applicable.

4.2.4 Summary of Secondary and Cumulative Effects

CEQ regulations implementing NEPA define “cumulative impact” as follows:

“Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions, taking place over a period of time. [40 C.F.R. 1508.7]”

For purposes of this analysis, significant cumulative impacts will occur in circumstances where impacts related to implementation of an alternative results in a significant impact when added to

Humboldt Bay Entrance Channel Jetties: FY2020 & FY2021 Repairs & Reconstruction

the environmental impacts of other past, present, or reasonably foreseeable future actions. As there are only two relevant projects in the region (repair and reconstruction of the Humboldt Bay Jetties, and the annual maintenance dredging of the Humboldt Bay Bar and Entrance Channel), both of which tend to work together synergistically, the USACE has concluded that their cumulative impacts, together with reasonably foreseeable future actions in the vicinity of the project footprint, will not significantly affect the quality of the existing natural or built environments.

5 Interested Parties

The USACE coordinated with the following federal, state, and local agencies, as well as other non-governmental stakeholders:

5.1 Federal Agencies

- Bureau of Land Management (Arcata Office)
- NOAA—National Marine Fisheries Service
- United States Coast Guard
- United States Environmental Protection Agency, Region 9
- United States Fish and Wildlife Service

5.2 State Agencies

- California Coastal Commission
- California Department of Fish and Wildlife
- California State Historic Preservation Office
- North Coast Regional Water Quality Control Board

5.3 Local Agencies

- North Coast Unified Air Quality Management District

5.4 Native American Tribes

- The Wiyot Tribe
- Blue Lake Rancheria
- Bear River Band of Rohnerville Rancheria

6 Determination

The proposed action would involve transporting by truck (Alternatives 1-3), or barge (Alternative 4), newly-quarried rock to the Humboldt Bay Entrance Channel jetties, and placing this rock and/or resetting pre-existing rock, and pouring a new concrete cap, as needed, in the process of repairing or reconstructing the jetties. Based on the analysis in this EA, it is expected that this proposed action, including any of the four action alternatives, will not have a significant impact on the quality of the human environment.

Factors considered in this analysis were rock quality, water quality, biological resources (including ESA- and EFH-protected species), air quality, noise, cultural resources, recreation, navigation, and transportation, among other factors. The USACE has determined preparation of an Environmental Impact Statement is not required.

7 Literature Cited

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Appendix A (Finding of No Significant Impact)

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Humboldt Bay Jetties: FY2020 & FY2021 Repairs and Reconstruction

Humboldt County, California

The U.S. Army Corps of Engineers, San Francisco District (Corps) has conducted an environmental analysis in accordance with the National Environmental Policy Act of 1969, as amended. The Draft Environmental Assessment (EA), *FY2020 & FY2021 Humboldt Jetty Repair and Reconstruction*, dated October 2019, addresses the need to perform various jetty maintenance activities to provide for continued safe and reliable navigation in Humboldt Bay Harbor, Humboldt County, California.

The Draft EA, incorporated herein by reference, evaluated several maintenance alternatives that would, over two construction seasons (tentatively FY20 and FY21), accomplish repair and reconstruction of the jetties. The recommended plan is the “proposed action,” and consists of:

- Transporting by truck, or barge, newly-quarried rock to the Humboldt Bay Entrance Channel, placing this rock and/or resetting pre-existing rock back onto the existing jetties, and pouring a new concrete cap and parapet wall, as needed;
- Sourcing newly-quarried rock will be sourced from a quarry (ies) that has been petrographically described and tested for key physical attributes, including specific gravity, and wet/dry and freeze/thaw durability.

In addition to a “no action” plan, an action alternative (with four sub-alternatives) was considered, which collectively comprise the “proposed action” plan. Three of these action alternatives involve trucking newly-quarried rock to the construction sites. Specifically, Alternative 1 involves trucking rock in from a distant quarry source; Alternative 2 involves trucking rock in from a nearby quarry source; and Alternative 3 involves some combination of Alternatives 1 and 2 spread over the two construction seasons. A fourth alternative involves barging in the newly-quarried rock from some distant quarry source. In this scenario, heavy equipment could be barged in as well.

Factors considered in this analysis included rock quality, water quality, biological resources (including ESA- and EFH-protected species), air quality, noise, recreation, cultural resources, navigation safety, and traffic considerations, among others. Based on the information obtained during the preparation of this EA, it is expected that any of the four action alternatives considered as part of the proposed action will not have a significant impact on the quality of the human environment. Consequently, preparation of an Environmental Impact Statement is not required.

For the action alternative (including the sub-alternatives of different rock delivery methods), potential effects were evaluated, as appropriate. A summary impacts assessment of the potential effects of the proposed action is listed in Table 1:

Table 1: Summary of Potential Effects of the Recommended Plan

	Insignificant effects	Insignificant effects as a result of mitigation measures*	Resource unaffected by action
Aesthetics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Air quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aquatic resources/wetlands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish and wildlife habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Threatened/Endangered species/critical habitat	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Historic properties	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other cultural resources	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hazardous, toxic & radioactive waste	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Hydrology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Navigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Noise levels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Socio-economics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental justice	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Geology, Soils, Seismicity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recreation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the recommended plan. Best management practices (BMPs) and avoidance or minimization measures as detailed in the EA, will be implemented, as appropriate, to minimize these impacts.

No compensatory mitigation is required as part of the recommended plan.

A 30-day public and agency review of the draft EA and FONSI will occur and is expected to be completed by November 16, 2019. Comments submitted will be responded to in the EA (Appendix K).

ENVIRONMENTAL AND CULTURAL COMPLIANCE REQUIREMENTS:

ENDANGERED SPECIES ACT (ESA)

Pursuant to section 7 of the Endangered Species Act of 1973, as amended, the U.S. Army Corps of Engineers (USACE), in informal consultation with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS), determined that the recommended plan may affect, but is not likely to adversely affect, the following federally listed species, or their designated critical habitat, within the project footprint:

Humboldt Bay Entrance Channel Jetties: FY2020 & FY2021 Repairs & Reconstruction

- Snowy Plover
- Southern Oregon/Northern California Coast (SONCC) coho salmon
- California Coastal chinook salmon
- Northern California steelhead
- Southern DPS of North American green sturgeon

A Biological Assessment documenting this determination was submitted to USFWS on September 20, 2019 (Appendix H), and a BA/Essential Fish Habitat assessment was submitted to NMFS also on September 20, 2019 (Appendix I). A response from the USFWS and NMFS to the submitted assessments is pending and will be obtained before the determination that a signed FONSI is appropriate.

MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT

Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), the USACE determined that the recommended plan may adversely affect essential fish habitat (EFH) for the fisheries present in the project area. The USACE prepared an EFH assessment and submitted it to NMFS on September 20, 2019 (Appendix I). A response from NMFS will be obtained before the determination that a signed FONSI is appropriate.

NATIONAL HISTORIC PRESERVATION ACT

USACE has consulted with the Wiyot Tribal Historic Preservation Officers and is in consultation SHPO on cultural resources adjacent to the Area of Potential Effects (APE). No historic properties will be expected to be adversely affected by the proposed project. In the unlikely event that an inadvertent discovery occurs, mitigation of adverse effects will be resolved in consultation with the SHPO, THPO, and Wiyot Tribes. Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, the USACE has determined that the recommended plan will have no adverse effect on historic properties. A consultation letter was sent to the SHPO on 18, 2019 requesting concurrence with this determination (Appendix J). Concurrence will be obtained before the determination that a signed FONSI is appropriate.

CLEAN WATER ACT SECTION 404(B)(1) COMPLIANCE

Pursuant to the Clean Water Act of 1972, as amended, the discharge of dredged or fill material associated with the recommended plan has been found to be compliant with section 404(b)(1) guidelines (40 CFR § 230) through use of nationwide permit #3 (NWP-3; see Appendix G).

CLEAN WATER ACT SECTION 401 COMPLIANCE

USACE received a waiver (#R1-2017-0039) on August 29, 2019 (Appendix F), from the North Coast Regional Water Quality Control Board (NCRWQCB), pursuant to section 401 of the Clean Water Act, for water quality coverage under existing Waste Discharge Requirements.

COASTAL ZONE MANAGEMENT ACT

USACE obtained a Negative Determination (ND-0025-19) from the California Coastal Commission (CCC), demonstrating consistency with the California Coastal Zone Management program pursuant to the Coastal Zone Management Act of 1972, on September 4, 2019 (see Appendix F).

DETERMINATION AND STATEMENT OF FINDING:

All applicable environmental laws have been considered, and coordination with appropriate state and federal agencies and officials has been completed.

Technical, environmental, and economic criteria used in the formulation of alternative plans were those specified in the Water Resources Council's 1983 *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*. All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on this report, the reviews by other Federal, State and local agencies, Tribes, input of the public, and the review by my staff, it is my determination that the recommended plan would not cause significant adverse effects on the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.

Date

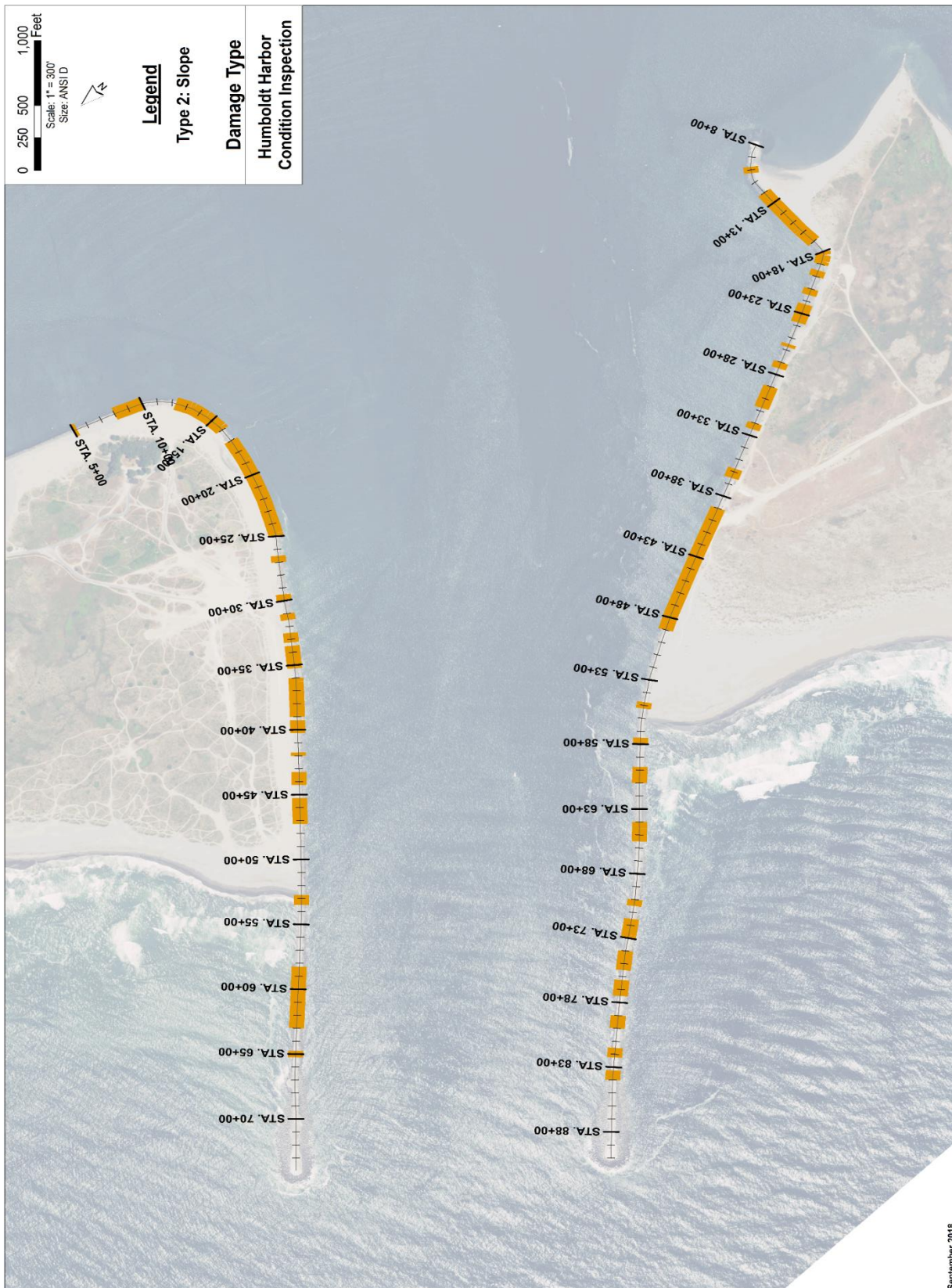
John D. Cunningham
Lieutenant Colonel, U.S. Army
District Commander and Engineer

Appendix B (Jetty Repair Types—Preliminary Locations)

Humboldt Bay Entrance Channel Jetties: FY2020 & FY2021 Repairs & Reconstruction



Humboldt Bay Entrance Channel Jetties: FY2020 & FY2021 Repairs & Reconstruction

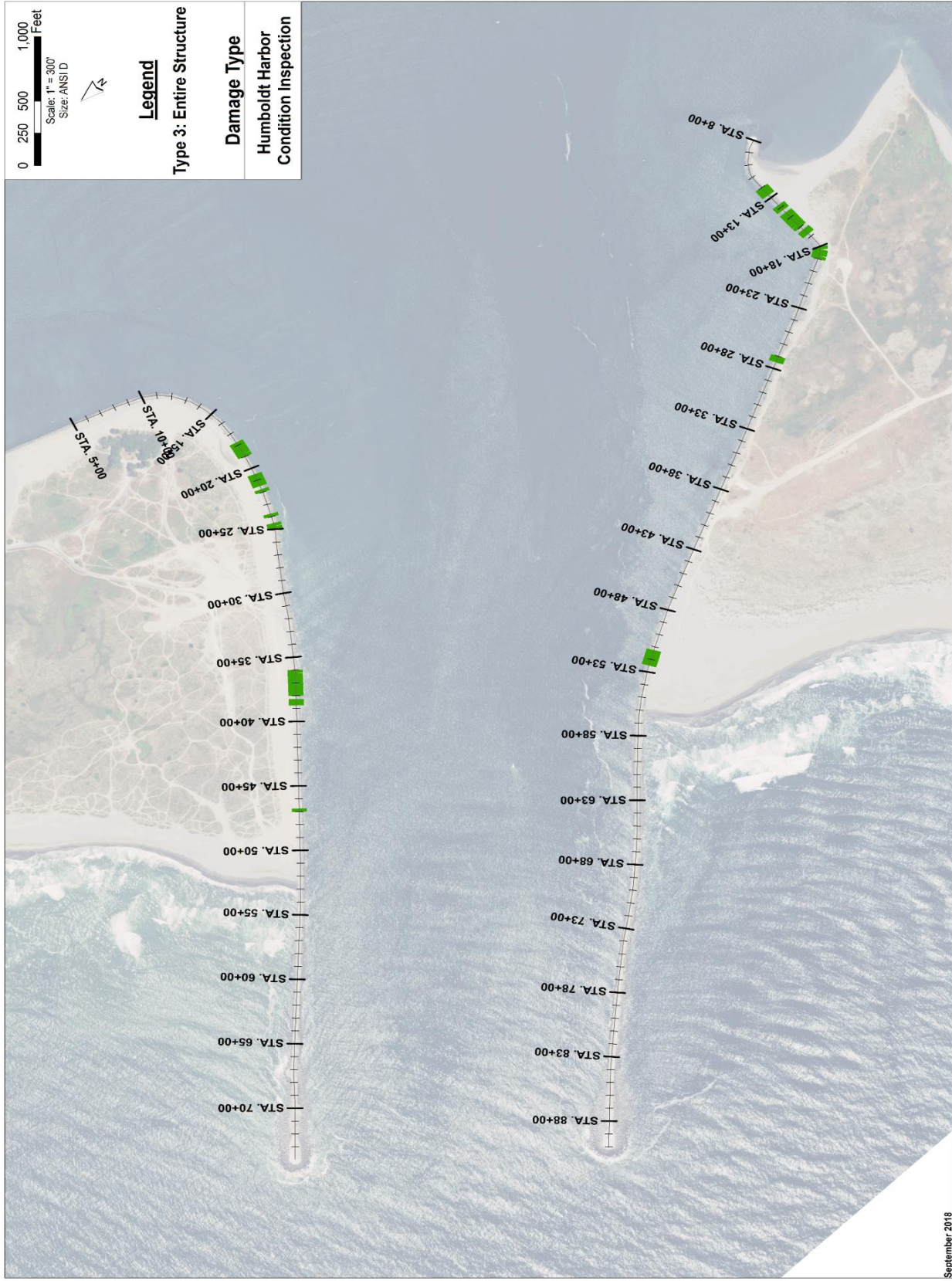


Humboldt Bay Entrance Channel Jetties: FY2020 & FY2021 Repairs & Reconstruction

0 250 500 1,000 Feet
Scale: 1" = 300'
Size: ANSID

Legend
Type 3: Entire Structure

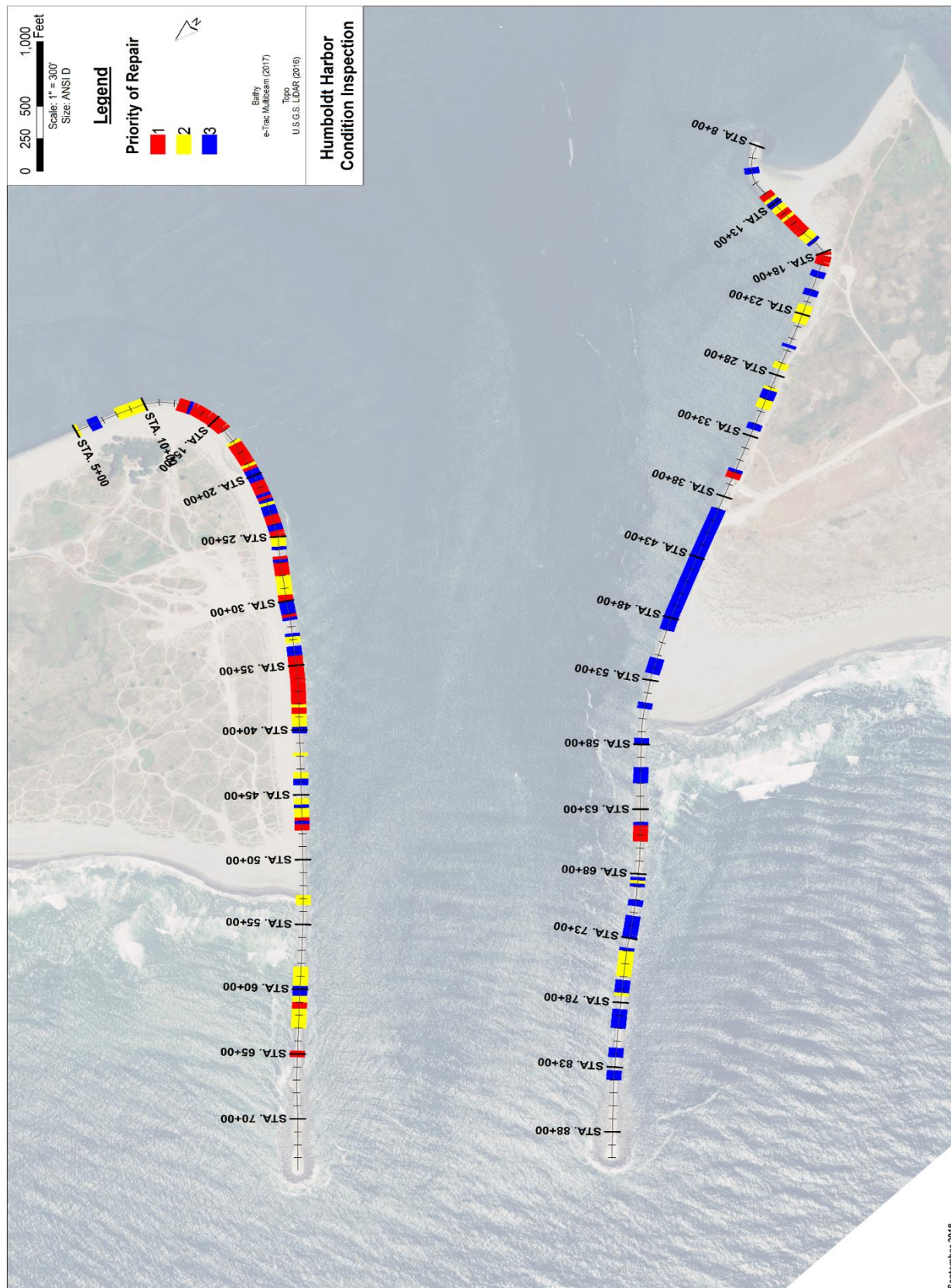
Damage Type
Humboldt Harbor Condition Inspection



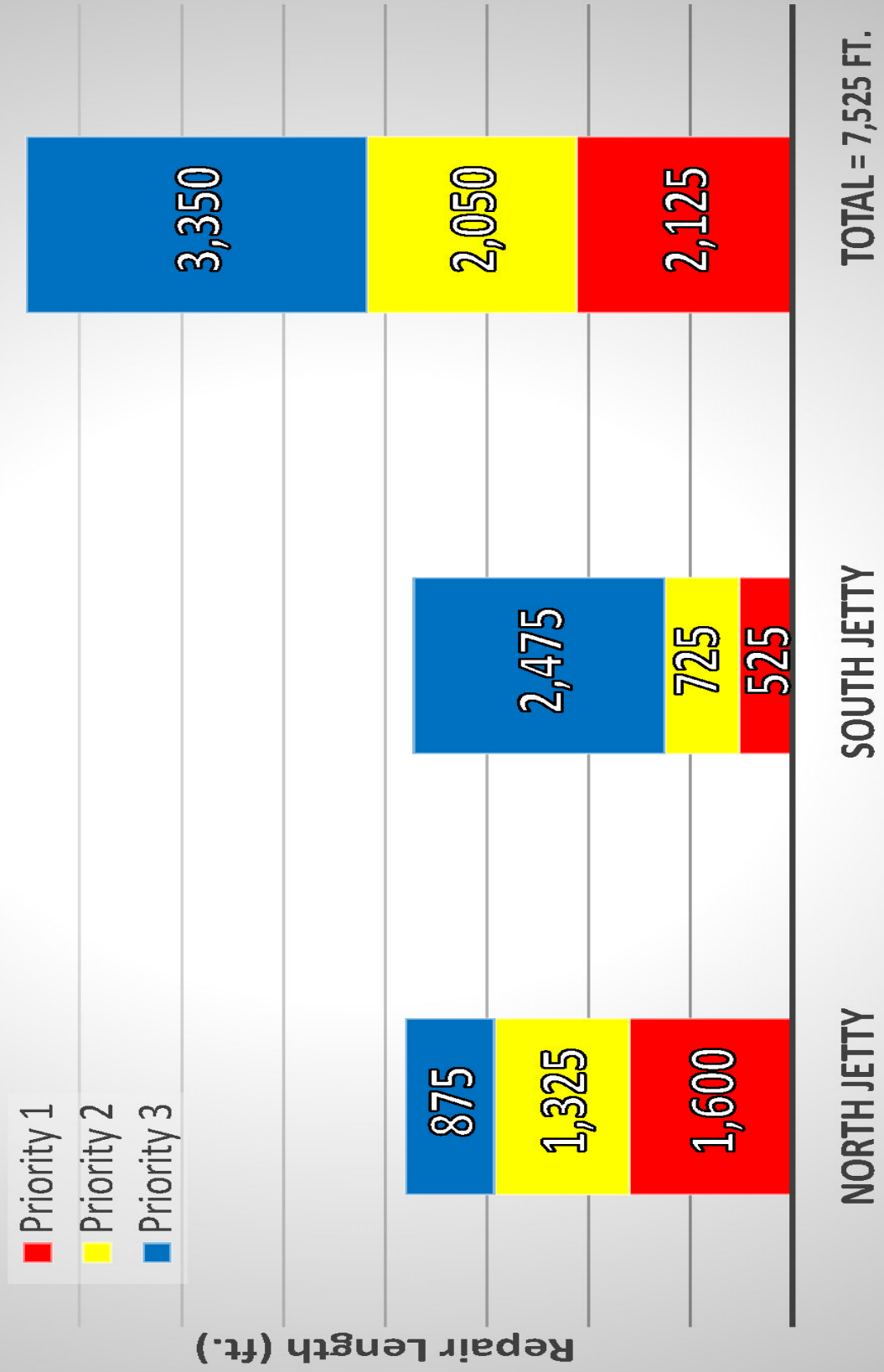


Appendix C (Jetty Repair Priorities—Preliminary Assessment)

Humboldt Bay Entrance Channel Jetties: FY2020 & FY2021 Repairs & Reconstruction



Repair Length by Priority



Appendix D (Air Quality Calculations)

Humboldt Bay Entrance Channel Jetties: FY2020 & FY2021 Repairs & Reconstruction

Assumptions

Heavy Equipment emissions factors taken from EMFAC2007 Offroads
Worker vehicles and delivery truck emissions factors taken from
Assume 9 workers per shift with a daily roundtrip average of 4 hours of
Semi trucks will spend 4 hours within the NCAQMD during deliveries, 1
Tug boat and barge emissions= $N*(EF*LF*Activity*HP)/2204.6$ g/lb
Load Factors taken from ARB ISOR Appendix D: OSM and Summary of
Worker vehicles emissions= $N*HoursPerDay*EF$
PM2.5=PM10*0.97 for tug and crew boats
PM2.5=PM10*0.89 for offroad heavy equipment
150 maximum number of work days

$$DE = EF \times Time \times LFwt$$

Where:

DE = Daily emissions in pounds per day
EF = Engine **emission factor** in pounds per hour by power rating
Time = Daily **operating time** in hours
LFwt = Time weighted engine **load factor** (fraction of full load), based on different engine operating modes

Appendix E (Consistency with the California Coastal Act)

9 Consistency with Provisions of the California Coastal Act

9.1 Article 1, General (*Sections 30000 – 30200*)

Maintenance repairs are specifically permitted under the Coastal Act, Section 30233 (Diking, Filling or Dredging). Filling with stone, to repair and/or reconstruct existing rock jetties used to protect navigation channels, is permitted in Section 30233(a)(2) where there is no feasible less-environmentally damaging alternative, and where feasible mitigation measures are provided to minimize adverse environmental effects. Therefore, the project is consistent with the allowable use, alternatives, and mitigation tests contained in the fill policy of Section 30233.

9.2 Article 2, Public Access (*Sections 30210 – 30214*)

Article 2 of the CCA requires that development shall not interfere with the public's right of access to the sea.

Minor impacts to public access may occur during dredging operations. To ensure public safety, the areas around machinery and dredging operations will not be accessible to the general public. This restriction is temporary in nature and not expected to result in any long-term adverse impacts on public access. In the long term, filling of the federal jetties to facilitate their repair and reconstruction would benefit public access and navigation within the Humboldt Bay Harbor.

9.3 Article 3, Recreation (*Sections 30220 – 30224*)

Article 3 of the CCA in general requires:

- Coastal areas suited for recreational activities shall be protected for such uses and place priority on development of recreational or visitor-serving uses rather than residential uses;
- Upland areas necessary to support coastal recreation uses shall be reserved for such uses; and
- Recreational boating use of coastal waters shall be encouraged.

Areas immediately adjacent to machinery and dredging operations will not be accessible to the public during this relatively short dredging episode. This restriction is temporary in nature, and not expected to result in any long-term adverse impacts on recreation. In the long term, filling of the federal jetties to facilitate their repair and reconstruction would benefit access to boating and other recreational uses within the Humboldt Bay Harbor.

9.4 Article 4, Marine Environment (*Sections 30230 – 30237*)

Article 4, Sections 30230 and 30231 of the CCA, requires that marine resources be maintained, enhanced, and where feasible, restored, and that special protection be given to areas and species of special biological or economic significance. It further requires that uses of marine environments be such that habitat function, biological productivity, healthy species populations, and fishing and recreational interests of coastal waters are maintained for long-term commercial, recreational, scientific, and educational purposes.

As noted under Article 1, dredging to maintain existing depths, or to restore previously dredged depths in navigational channels is permitted in Section 30233(a)(2) where there is no feasible less-environmentally damaging alternative, and where feasible mitigation measures are provided to minimize adverse environmental effects.

9.5 Article 5, Land Resources (*Sections 30240 – 30244*)

Article 5 contains the heart of the CCA as it applies to protecting fish and wildlife habitat and species. This article requires that environmentally sensitive habitat areas be protected against any significant disruption of habitat values, and further that only uses dependent upon these resources be allowed to utilize them. This article extends this protection to prime agricultural lands, lands suitable for agricultural use, archaeological and paleontological resources, as well as productive soils and timberlands.

In concert with this article, nearby dunes and sensitive plant habitat will be monitored continuously during repair and reconstruction activities as a mitigation measure. Specifically, in order to avoid potential impacts to critical habitat for the Snowy Plover, a proposed monitoring plan that involves having a full-time biologist on site to monitor construction activities, plus the placement of exclusionary fencing to ensure that potential habitat is not disturbed.

With proper on-site management, the project is not anticipated to result in adverse impacts to land resources. Additionally, the monitoring program, when implemented, will provide a wealth of data that should be useful in planning future jetty repair episodes.

9.6 Article 6, Development (*Sections 30250 – 30255*)

Article 6 applies to new residential, commercial, or industrial development and requires that new development be contiguous with, or in close proximity to, existing developed areas. It requires that scenic and visual qualities of coastal areas be considered as a resource of public importance, and be protected during the process of development. Additionally, it maintains that new development shall not impede access to coastal resources, minimize risks to life and property, and be serviceable by public works.

The proposed maintenance dredging is not a development project and, therefore, Article 6 does not apply to this project.

9.7 Article 7, Industrial Development (*Sections 30260 – 30265*)

Article 7 states that the CCC has permitting authority over all offshore oil and gas development within the three-mile jurisdiction and onshore facilities within the coastal zone. Further, it encourages coastal-dependent industrial facilities to be located or expanded within existing sites.

The proposed maintenance dredging does not involve industrial development; as such, Article 7 does not apply to this project.

Appendix F (Environmental Compliance Correspondence)

CALIFORNIA COASTAL COMMISSION

45 FREMONT STREET, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200



September 4, 2019

Tessa Beach, Chief
Environmental Sections
U.S. Army Corps of Engineers
450 Golden Gate Ave.
San Francisco, CA 94102

Attn: Mark Wiechmann

Re: **ND-0025-19** U.S. Army Corps of Engineers, Humboldt Bay Entrance Channel Jetty Repairs,
Humboldt Co.

Dear Dr. Beach:

The U.S. Army Corps of Engineers has submitted the above-referenced negative determination for repairs to deteriorated portions of the north and south jetties at the Humboldt Bay Entrance Channel. The repairs are necessary to maintain navigability into and out of the bay, and the harsh wave climate has damaged the jetties. The repairs would be limited to jetty areas not covered with 42-ton dolosse.

The repairs include replacing large armor stones/boulders (up to 10 ft. across for the largest boulders, weighing up to 25 tons per boulder), which would be trucked in from inland quarries, to staging areas near the jetties. The repair work involves mobilizing and demobilizing equipment, including two large cranes, rearranging existing jetty slope stones as needed, rebuilding areas where rocks or concrete are missing or where structural integrity has been compromised, and restoring the concrete cap walkway and parapet wall on top of the jetties.

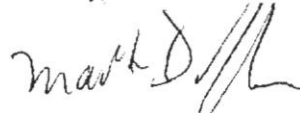
Construction on the north jetty is scheduled to occur between March and October 2020, with construction on the south jetty to occur during the same period in 2021. If needed (due to truck impassibility along the existing roads to the south jetty), a barge crossing from Fields Landing Boar Yard will be used to transport stones to the south jetty staging area.

The project will benefit navigation and coastal boating uses. The staging areas are graded and devoid of vegetation. The staging areas will be fenced; however the public parking areas adjacent to the staging areas will remain open to the public, with signs as appropriate to direct the public around the fenced areas. Fencing will be removed upon completion. Water quality will be protected using Best Management Practices during concrete pouring and stone placement. Scenic views will not be adversely affected. Cultural resources will not be affected, and the Corps is consulting with the Wiyot Tribe.

Page 2

Under the federal consistency regulations, a negative determination can be submitted for an activity "which is the same as or similar to activities for which consistency determinations have been prepared in the past." The Commission and staff have concurred with a number of previous Army Corps consistency and negative determinations for repairs to the north and south jetties (CD-007-91, CD-015-86, CD-068-84, CD-037-84, CD-034-83, and CD-022-83). The Commission staff **agrees** with the Corps that this project is similar to the previously-authorized Humboldt Bay Jetty repairs and would not adversely affect coastal resources. We therefore **concur** with your negative determination made pursuant to 15 CFR 930.35 of the NOAA implementing regulations. Please feel free to contact Mark Delaplaine at (415) 904-5289 if you have any questions regarding this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark Delaplaine", with a stylized flourish at the end.

(for) JOHN AINSWORTH
Executive Director

cc: Arcata District



GAVIN NEWSOM
GOVERNOR

JARED BLUMENFELD
SECRETARY FOR
ENVIRONMENTAL PROTECTION

North Coast Regional Water Quality Control Board

August 29, 2019

Mr. Mark Wiechmann
US Army Corps of Engineers, San Francisco District
450 Golden Gate Ave.
San Francisco, CA 94102
Mark.J.Wiechmann@usace.army.mil

Dear Mr. Wiechmann:

Subject: Notice of Applicability (NOA) for Coverage under the *Conditional Waiver of Waste Discharge Requirements for Specific Categories of Low Threat Discharge in the North Coast Region R1-2017-0039*

File: Humboldt Bay Entrance Channel Jetties Repair Project
WDID 1B190126WNHU, ECM PIN CW-860558

On August 19, 2019, the North Coast Regional Water Quality Control Board (Regional Water Board) received a Notice of Intent (NOI) application from Mr. Mark Wiechmann, U.S. Army Corps of Engineers (Applicant), for the Humboldt Bay Entrance Channel Jetties Repair Project (Project). Due to the site-specific nature of the impacts associated with the proposed project, the Regional Water Board has determined that the Project shall obtain coverage under, and comply with the terms of the Regional Water Board Resolution R1-2017-0039, *Conditional Waiver of Waste Discharge Requirements for Specific Categories of Low Threat Discharge in the North Coast Region* (Conditional Waiver).

The Project is located within the Eureka Plain Hydrologic Unit 110.00. The Project impacts the Pacific Ocean and Humboldt Bay, waters of the U.S. and state, and is located along the north and south jetty at the mouth of Humboldt Bay, Eureka, Humboldt County. The coordinates of the project are approximately latitude 40.76302°N and longitude 124.230801°W.

VALERIE L. QUINTO, CHAIR | MATTHIAS ST. JOHN, EXECUTIVE OFFICER

5550 Skylane Blvd., Suite A, Santa Rosa, CA 95403 | www.waterboards.ca.gov/northcoast

Due to the wave climate in the entrance channel, work may take place between March 15th and October 15th depending on funding and weather conditions. The North Jetty Repair will take place in 2020 and the South Jetty Repair will take place in 2021 depending on weather conditions and logistics.

Regional Water Board staff has determined that the Project, as described in the NOI, will not have a significant effect on the environment and is exempt from CEQA review and meets the eligibility requirements for coverage under the Conditional Waiver. The U.S. Army Corps of Engineers proposes to conduct the repair of their facility and does not issue itself a federal permit pursuant under section 404 of the Clean Water Act (CWA) to conduct these activities, hence, this does not trigger the Regional Water Board to issue a CWA section 401 water quality certification.

The proposed work is classified as maintenance repair and reconstruction, and as such, the design of the jetties will not be altered. This work will involve procurement of both large boulders, measuring 6-10 feet across, and of smaller stone measuring 6-24 inches across.

The work will entail the following actions: a) mobilizing construction equipment to the site and demobilizing same equipment at the conclusion of the project; b) rearranging existing stones on the jetty slope as needed; c) importing newly-quarried stone and rebuilding the jetty where stone is either missing or where the structural integrity has been compromised by storms and severe wave action; d) removing the concrete cap walkway and parapet wall where damaged or severely degraded, and rebuilding these structures on top of the jetty.

It is anticipated that construction equipment will entail two large cranes capable of hoisting 25-ton boulders, together with trucks and ancillary equipment capable of pouring concrete, and trucks carrying newly-quarried stone as needed. The large crane and trucks will be positioned either on the jetties themselves, or inboard (land) side of the jetties. For each jetty, a contractor's work area (staging area) for the storage of stone and construction equipment will be located nearby. These staging areas, and the haul roads that feed into them, will consist of sandy substrate largely devoid of vegetative growth.

Repair and reconstruction of the North and South jetties will be limited to those portions below the jetty heads not covered with 42-ton concrete dolosse (measuring 15 x 15 x 15 feet). Repair work can be categorized into three types of action as described below, and as illustrated in Figure 2 at the end of this document.

Repair Type 1: Jetty section maintains its structural integrity. Type 1 repairs involve restoring the concrete cap and parapet wall where it is severely damaged, and replacement of underlying small stones that are missing beneath the cap. Severe wave action over the years has resulted in cracking and loss of existing pieces of the cap, ranging from small, blow-hole size pieces to large scale slumping and failure of

immense sections of concrete. Huge cavities in the jetty can develop where underlying stones are exposed and gouged out by storm waves (Figure 2). The reconstructed cap will be composed entirely of concrete; it will have no steel reinforcement.

Repair Type 2: Jetty section maintains its structural integrity. Type 2 repairs involve resetting stones, and as needed, replacement of displaced stones on the jetty slope with newly quarried rock to restore side slopes to their pre-existing design dimensions (Figure 2).

Repair Type 3: Jetty section has lost its structural integrity (Figure 2). Type 3 repairs involve removing entire portions of jetty, and then reconstructing them, stone by stone, with both existing stones and newly quarried stones. During reconstruction, rock will be carefully placed by crane into stable, interlocking positions such that the reconstructed jetty will attain its pre-existing design dimensions. Upon completion of Type 3 repairs, a new concrete cap, plus parapet wall will be recreated.

The Project will temporarily impact approximately 3,125 linear feet of the existing north jetty and 3,325 linear feet of the existing south jetty within the Humboldt Bay entrance channel, within waters of the state, but proposes no new impacts. The Project shall be constructed and maintained as described within the NOI materials including the submitted *Best Management Practices and Assurances*. The Applicant shall implement the Project in accordance with terms and conditions of the Conditional Waiver.

Receiving Water: Pacific Ocean, Humboldt Bay, Eureka Plain Hydrologic Unit No. 110.00

Permanent Impact Area: none

Temporary Impact Area: North Jetty: 3,125 linear feet
South Jetty: 3,375 linear feet

Latitude/Longitude: 40.76302°N / 124.230801°W

Applicants shall submit a Notice of Completion (NOC) within 45 days of completion of the Project showing that it was constructed in accordance with the project description. The NOC should include the file name listed above, including WDID No. and ECM PIN, and be submitted to Northcoast@waterboards.ca.gov. Please familiarize yourself with all the requirements of the Conditional Waiver. Regional Water Board staff may request a site visit to confirm status of Project and compliance with this Conditional Waiver.

This authorization for any dredge and fill activities expires on August 29, 2024. Conditions and monitoring requirements outlined in this certification are not subject to the expiration date outlined above, and remain in full effect and are enforceable.

Regional Water Board staff has determined that the proposed activities may proceed under the Conditional Waiver.

Please call Brandon Stevens at (707) 576-2377 or Gil Falcone at (707) 576-2830 if you have any questions.

Sincerely,


On Behalf Of



Digitally signed by Jonathan
Warmerdam

Date: 2019.08.29 08:53:20 -07'00'

Matthias St. John
Executive Officer

190829_BDS_mc_USACE_HumboldtBayJetty__CatWaiver_NOA

cc: State Water Resources Control Board, Stateboard401@waterboards.ca.gov
Ms. Jennifer Siu, EPA Region 9, Siu.Jennifer@epa.gov

Figure 1 – Project Location

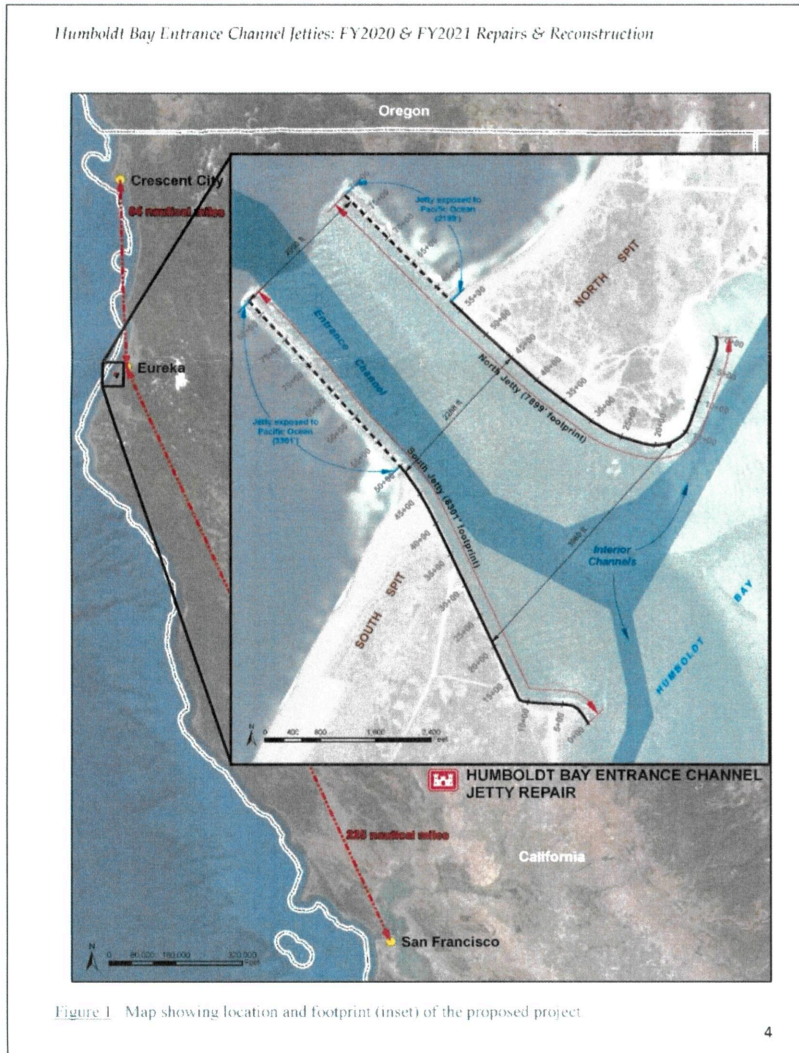


Figure 2 – Depiction of three varying repair types

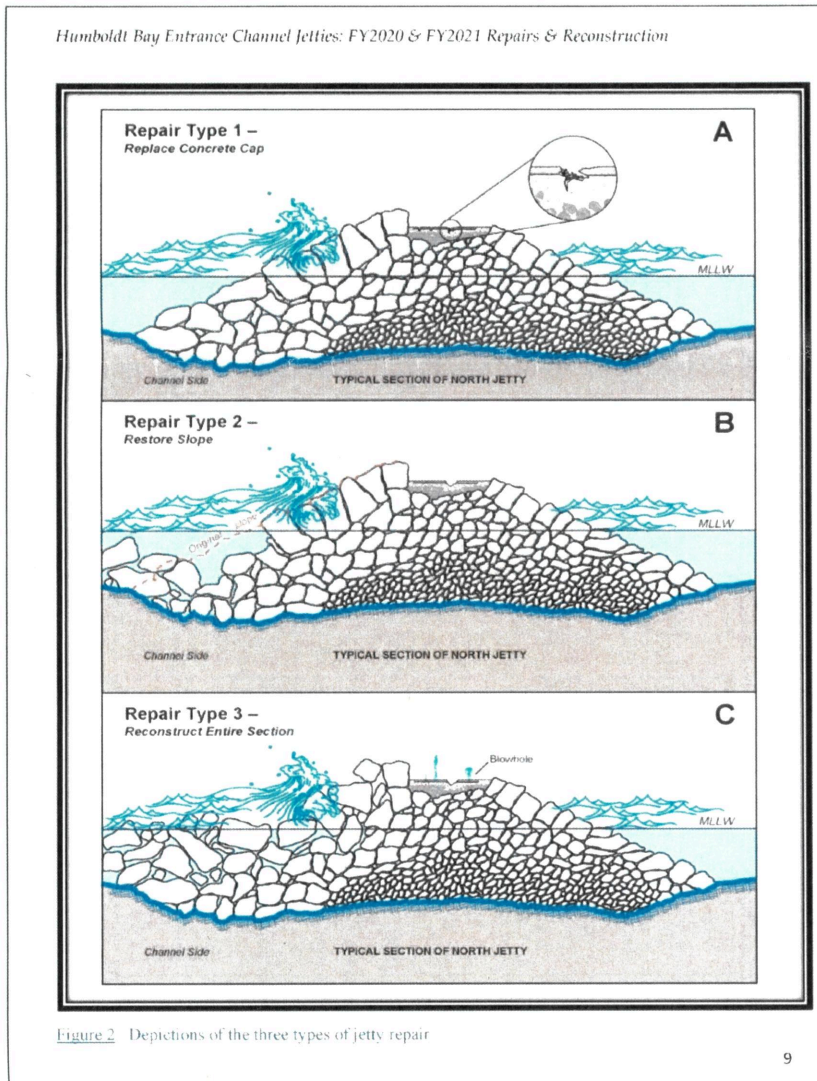


Figure 2 Depictions of the three types of jetty repair

Appendix G (CWA, Section 404 Compliance)

**Clean Water Act Section 404 & Rivers and Harbors Act Section
10 Nation Wide Permit (NWP) #3 Conformity Evaluation**

Humboldt Jetty Repair Project



October 2019



**U.S Army Corps of Engineers
San Francisco District
Planning Branch, Environmental Section**

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Acronyms & Abbreviations

BLM.....	Bureau of Land Management
cf	Cubic feet
CFR.....	Code of Federal Regulations
cy.....	Cubic yards
EA	Environmental Assessment
FR.....	Federal Regulation
FY	Fiscal Year
HTL.....	High Tide Line
MHW.....	Mean High Water
n/a.....	not applicable
NEPA	National Environmental Policy Act
NOAA.....	National Oceanic and Atmospheric Administration
NWP-3	Nation Wide Permit #3
O&M.....	Operations and Maintenance
USACE	United States Army Corps of Engineers, San Francisco District
U.S.C.....	United States Code
USCG.....	United States Coast Guard
USEPA.....	United States Environmental Protection Agency
WDR	Waste Discharge Requirements
WQC	Water Quality Certification

Introduction

Section 404 of the Clean Water Act (33 USC §1344) regulates the discharge of dredge or fill material into waters of the United States. A permit from USACE is generally required prior to discharging dredged or fill material into waters of the United States. Waters of the United States are defined in Title 33 CFR Part 328.3(a) and include territorial seas, waters effected by the ebb and flow of the tide, and a range of freshwater wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds. The USACE may authorize activities through three basic types of permits: standard permits, general permits, or letters of permission. For proposed actions to be undertaken by USACE, the agency does not issue itself a permit but includes in the NEPA document prepared for the action a discussion of section 404 consistency and either a 404(b)(1) analysis or a statement of conformity in using a Nation Wide Permit (NWP).

The 404 evaluation is presented herein for the Humboldt Jetty Repair Project. Additional details regarding the proposed action and associated effects are described throughout the body of the 2019 Environmental Assessment (EA).

1 Project Description

1.1 Location

The Humboldt Jetty is located within the Pacific Ocean along the Northern California Coast, within Humboldt County approximately 2.4 miles south of the town of Fairhaven, and 2.7 miles west of Bayview which is located on the opposite side of Humboldt Bay. Humboldt Bay lies just inside the jetty channel and is bordered by the US 101 freeway on its east side. The jetty is situated between sandy beaches to the south and north with access roads from the south and north which lie between the beach and Humboldt Bay; terminating close to the jetty on each side. A map of the project area can be seen below in Figure 1.

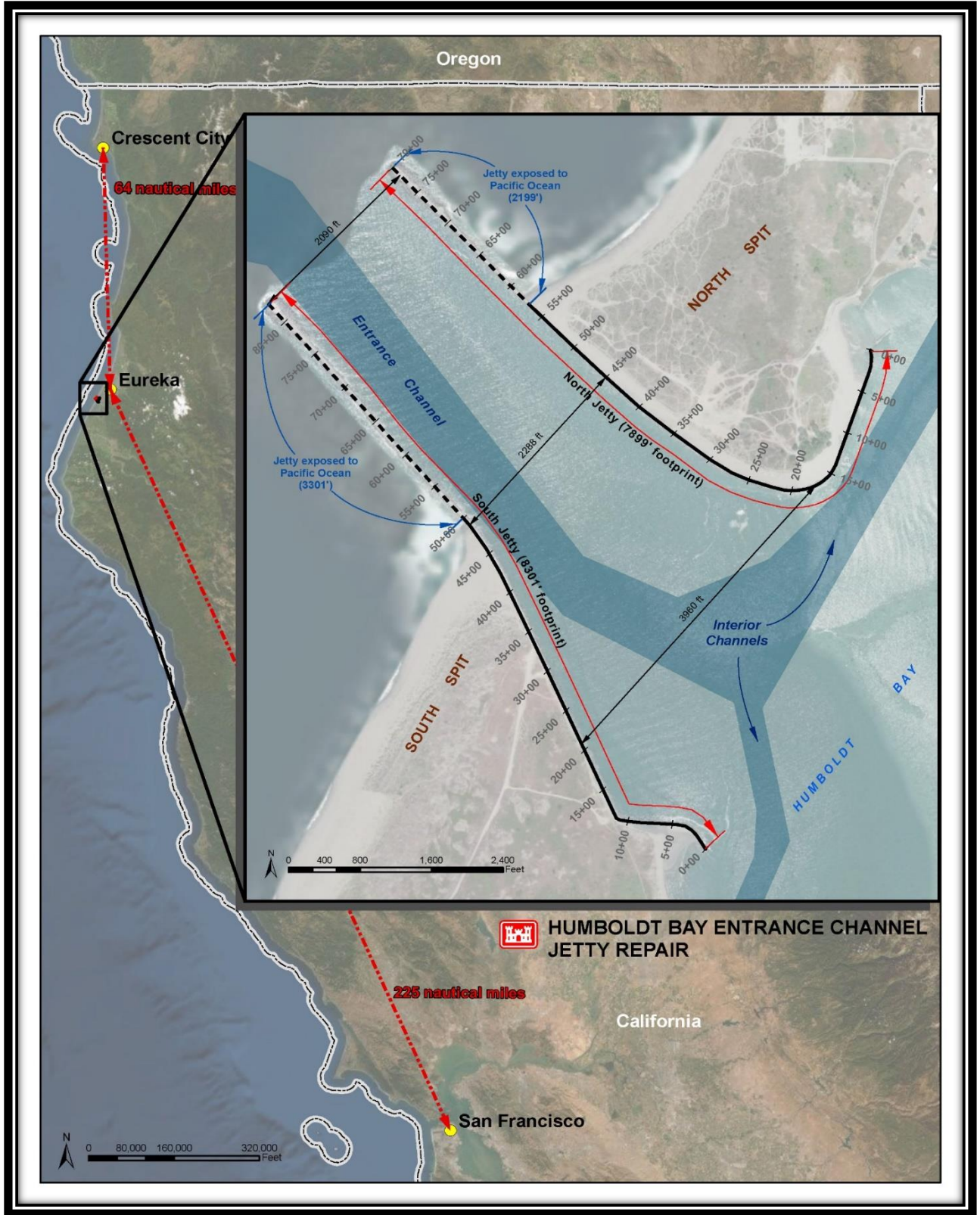


Figure 1. Map of the Project Area with HTL and OHWM

1.2 General Description and Alternatives

The overall project objective is to repair the jetty back to a working condition, which has been degraded over time from constant wave action and storms. The effect of the degradation is that the stones, which were placed to build up the jetty, have been broken or have collapsed into the water below. This degradation results in a loss of height and effectiveness; which if not repaired will eventually result in unsafe conditions for the passage of vessels into and out of Humboldt Bay. All project alternatives would have the same impact to waters of the United States, as they only differ in the source and transport of the stones used to rebuild the jetty. The repair of the jetty may require the following:

- Rearranging existing stones to build the jetty slope
- Placement of new stones
- Capping with concrete

1.2.1 Authority and Appropriations

Authority for repair and reconstruction of the Entrance Channel Jetties at Humboldt Bay and Harbor is provided by the Rivers and Harbors Acts of 1910, 1930, 1935, and 1968. Project funding is classified as Operations and Maintenance (O&M) work.

Appropriations for the planning, design, and initial construction work in FY2020, largely covering the North Jetty, are from the Harbor Maintenance Trust Fund. It is anticipated that subsequent appropriations will be forthcoming in FY2021 as well, so as to fund work on the South Jetty and complete the project. It is to be understood that actions cited in the EA as taking place in FY2021 are contingent upon receipt of this funding. If it is not forthcoming, construction work will be delayed into subsequent years.

1.3 Alternatives

The alternatives evaluated to repair the jetties are discussed in Section 2 of the EA including No Action (§2.2) and various action alternatives (§2.3 and §2.4). A brief summary of the alternatives is included below. Please refer to the EA for more detail.

1.3.1 No Action Alternative

Under the No Federal Action alternative, the federal government would not repair any segments of the damaged breakwaters. Degradation and significant damage to the jetties is expected to increase gradually over time. Navigability and safety for deep draft and other commercial and recreational fishing vessels entering and leaving the Entrance Channel would be directly impacted, and businesses and industries dependent upon waterborne commerce would be indirectly adversely affected.

1.3.2 Action Alternatives

Repair Activities Common to All Action Alternatives

Repair and reconstruction of the North and South jetties will be limited to those portions below the jetty heads not covered with 42-ton concrete dolosse (measuring 15 x 15 x 15 feet). The repair work can be categorized into three types of action as described below, and as illustrated in Figures 2A, 2B, and 2C.

Repair Type 1— Jetty section maintains its structural integrity. Type 1 repairs involve restoring the concrete cap and parapet wall where it is severely damaged, and replacement of underlying small stones that are missing beneath the cap. Severe wave action over the years has resulted in cracking and loss of existing pieces of the cap, ranging from small, blow-hole size pieces to large scale slumping and failure of immense sections of concrete. Huge cavities in the jetty can develop where underlying stones are exposed and gouged out by storm waves. The reconstructed cap will be composed entirely of concrete strengthened with glass and steel fibers; it will have no separate steel bar reinforcement.

Repair Type 1 estimated length along the North Jetty: 2,075 feet

Repair Type 1 estimated length along the South Jetty: 675 feet

Repair Type 2— Jetty section maintains its structural integrity. Type 2 repairs involve resetting stones, and as needed, replacement of displaced stones on the jetty slope with newly -quarried rock to restore side slopes to their pre-existing design dimensions.

Repair Type 2 estimated length along the North Jetty: 3,125 feet

Repair Type 2 estimated length along the South Jetty: 3,375 feet

Repair Type 3— Jetty section has lost its structural integrity. Type 3 repairs involve removing entire portions of jetty, and then reconstructing them, stone by stone, with both existing stones and newly quarried stones. During reconstruction, rock will be carefully placed by crane into stable, interlocking positions such that the reconstructed jetty will attain its pre-existing design dimensions. Upon completion of Type 3 repairs, a new concrete cap (with glass and steel fiber reinforcement), plus parapet wall will be recreated.

Repair Type 3 estimated length along the North Jetty: 600 feet

Repair Type 3 estimated length along the South Jetty: 600 feet

Construction Activities Common to All Action Alternatives

The proposed work is classified as maintenance repair and reconstruction, and as such, the design of the jetties will not be altered. This work will involve procurement of both large boulders, measuring 6-10 feet across, and of smaller stone measuring 6-24 inches across.

The work will entail the following actions: a) mobilizing construction equipment to the site and demobilizing same equipment at the conclusion of the project; b) rearranging existing stones on the jetty slope as needed; c) importing newly-quarried stone and rebuilding the jetty where stone is either missing or where the structural integrity has been compromised by storms and severe wave action; d) removing the concrete cap walkway and parapet wall where damaged or severely degraded, and rebuilding these structures on top of the jetty.

It is anticipated that construction equipment will entail two large cranes capable of hoisting 25-ton boulders, together with trucks and ancillary equipment capable of pouring concrete, and trucks carrying newly-quarried stone as needed. The large crane and trucks will be positioned either on the jetties themselves, or inboard (land) side of the jetties. For each jetty, a contractor's work area ("staging area") for the storage of stone and construction equipment will be located nearby.

Construction of the North Jetty is scheduled for 2020. Construction of the South Jetty is scheduled for 2021. Due to the wave climate in the Entrance Channel, construction in each year will take place approximately between the months of March and October.

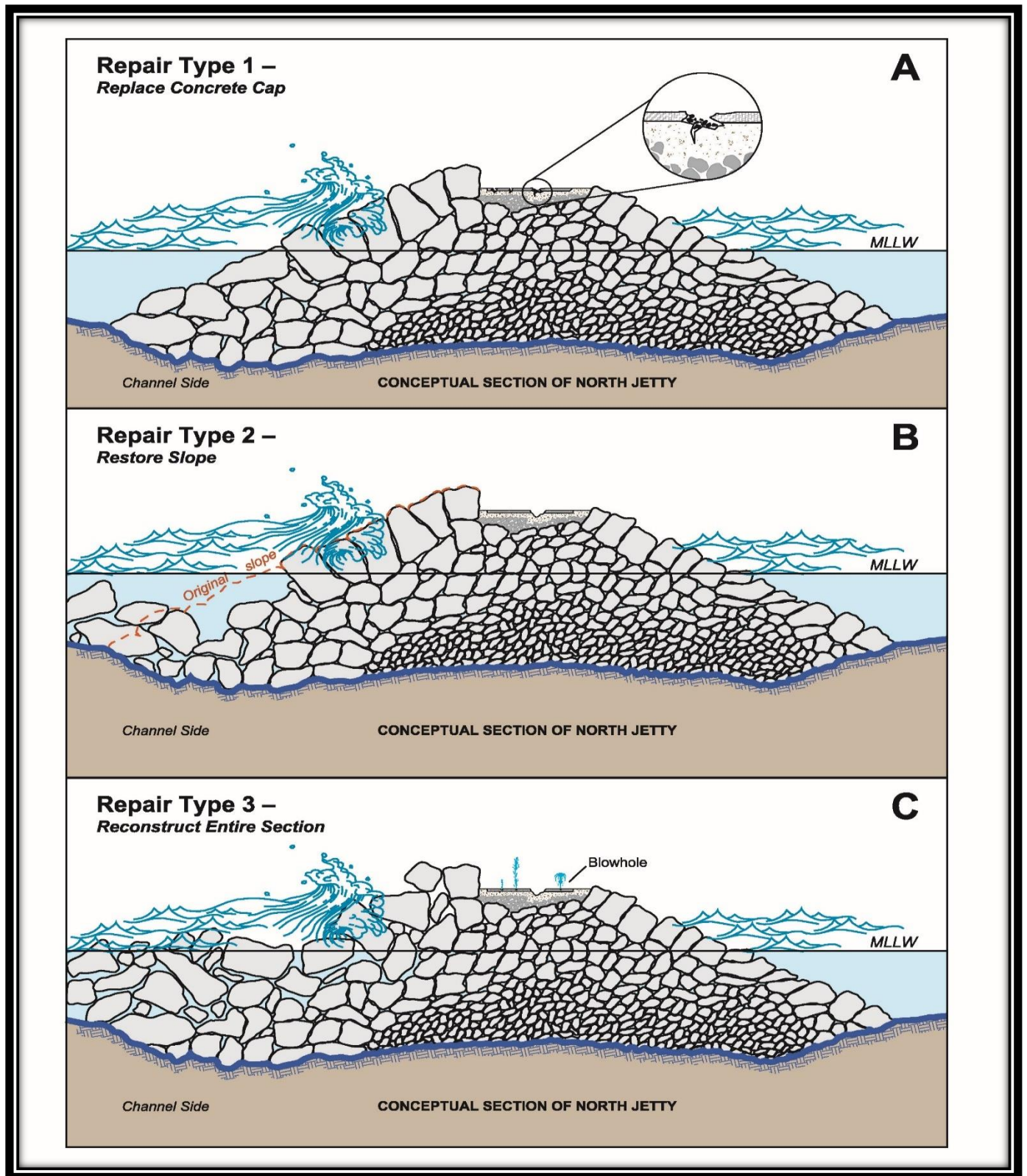


Figure 2. Conceptual depictions of the three types of jetty repair.

Different Action Alternatives

Alternative 1—Rock Trucked In From Distant Quarry Source

Under Alternative 1, rock would be trucked in from a distant quarry source. The most likely possibility is the quarry known as Mountain Gate in Redding, California. For the South Jetty, if trucking along Bluff Road/South Jetty Road is infeasible, trucks will be redirected to the Fields Landing Boat Yard to transport the stones by barge to the project site. The barge will transport the stones across the bay to the South Jetty.

Alternative 2—Rock Trucked In From Nearby Quarry Source

Under Alternative 2, rock would be trucked in from a nearby quarry source. The most likely possibility is the quarry known as Liscom Hill in Willow Creek, California. For the South Jetty, if trucking along Bluff Road/South Jetty Road is infeasible, trucks will be redirected to the Fields Landing Boat Yard to transport the stones by barge to the project site. The barge will transport the stones across the bay to the South Jetty.

Alternative 3—Some Combination of Alternative 1 and Alternative 2

With this alternative, some combination of trucking in newly-quarried stone from a distant quarry source (Alternative 1) and trucking in stone from a nearby quarry source (Alternative 2) is used. At the contractor's discretion, the combination might be split equally between the North and South Jetties, or in some mixed proportion between the two jetties.

Alternative 4—Barging In Newly-Quarried Rock

Under this scenario, rock would be barged in from some distant quarry source. Catalina Island, in southern California, is considered the most distant possible quarry source.

Under all scenarios involving barging, because there are no offloading docks in the area of the South Jetty, the construction contractor would need to identify a system for offloading stones. No pile driving or dredging of material, or permanent fill shall be allowed as part of setting up or executing any system of offloading stones. One potential approach would be for a barge, filled with 15-20 ton boulders, or with heavy construction equipment (cranes), to land directly on the beach. The stones, or equipment, would then be off-loaded, and then transported with a loader to the staging area. With this scenario, it's possible that a small amount of sediment will need to be moved. This action would not involve dredging and subsequent disposal. Instead, sediment removal would involve side-casting (pushing sediment to the side) to create a shallow area, or "notch," that the barge would be able to slide into. After completion of the project, the side-casted sediment would be left to naturally return.

2 Evaluation of the Project: Conformity for NWP 3

2.1 Definition of Waters of the United States and Waters of the United States within the Project Area

In 40 CFR 230.3(s), it states that Waters of the United States includes all territorial seas, and 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. The project location also takes place in navigable waters as defined in 33CFR329.4; where navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

In order to determine the Waters of the United States that could be effected by the proposed action and the action alternatives on the study area the Mean High Water (MHW) elevation and High Tide Line (HTL) were used to determine how much of the Humboldt Jetty structure lies within these jurisdictional waters as they correspond to Section 10 of the Rivers and Harbors Act and section 404 of the Clean Water Act, respectively. The High Tide Line was found by reviewing tide data from the previous year and finding that 9.46 ft NAVD88 was the maximum tide elevation (NOAA 2019). The MHW elevation at the jetty was determined using gauge data and found to be 6.48 ft NAVD88, see figure 1 above (NOAA 2019). Most of the Humboldt Jetty structure has an elevation of approximately 10 ft NAVD88 where construction would take place. Due to the close proximity in elevation of the jetty, the HTL and MHW elevation, the jetty is functionally entirely within waters that coincide with Section 404 of the Clean Water Act and partially within waters that coincide with the Rivers and Harbors Act. The area of Waters of the US occupied by the jetty is approximately 24.7 acres for the North Jetty and 31.6 acres for the South Jetty. Construction will not take place over the entire area of the jetty; 55,320 sf will be repaired for the North Jetty while 79,180 sf will be repaired for the South Jetty. Under all alternatives, the footprint of the jetty would not be changed from the previously authorized area, therefore the project will not result in any loss of area to Waters of the United States.

2.2 Fill Material

Fill material will consist of stones sourced from California quarries that meet technical criteria for jetty construction, specifically that each stone has a high enough value for bulk specific gravity. Approximately 2000 stones will be needed; each stone is expected to weigh between 15 to 20 tons each and measure some 10 to 12 feet across. Stones used for repairing the jetty will not impact water chemistry or cause any change in water quality, and will be clean upon placement. The volume of new material to be replaced into the waters of the United States (consistent with the jetties' design) will be 1,530 cubic yards (cy) of concrete and 177,300 cubic

feet (cy) of stone for the North Jetty, and 350 cy of concrete and 492,000 cf of stone for the South Jetty. No material would be dredged from the project.

2.3 Nationwide Permit 3: Maintenance

Nationwide Permits are issued by USACE for various activities, which can be used to satisfy Section 404 of the Clean Water Act if a project 1) satisfies the requirements for a particular nationwide permit and 2) meets the general conditions for using a nationwide permit. As such, it was found that the Humboldt Jetty Repair Project meets the requirements for Nationwide Permit 3 (Maintenance) as reissued in 2017 under 82 FR 1860, which states: “The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification.” The plans and specifications for the Humboldt Jetty Repair Project were reviewed and confirmed that they meet the general conditions for nationwide permits, which have been tabulated in Table 1.

Table 1. Table of General Conditions with Project Adherence Determination and Justification.

General Condition	Project Adheres to Condition (Y/N) or N/A	Relevant Section of the Environmental Assessment for Justification of Meeting the Condition
1. Navigation	Y	4.2.3
2. Aquatic Life Movements	Y	4.2.2
3. Spawning Areas	Y	4.2.2
4. Migratory Bird Breeding Areas	N/A	-
5. Shellfish Beds	N/A	-
6. Suitable Material	Y	2.3.3 & 2.3.4
7. Water Supply Intakes	Y	1.4
8. Adverse Effects from Impoundments	N/A	-
9. Management of Water Flows	Y	2.4
10. Fills Within 100-Year Floodplains	N/A	-
11. Equipment	N/A	-
12. Soil Erosion and Sediment Controls	Y	2.4
13. Removal of Temporary Fills	Y	2.4
14. Proper Maintenance	Y	1.5
15. Single and Complete Project	Y	2.4
16. Wild and Scenic Rivers	N/A	-
17. Tribal Rights	Y	4.2.3

General Condition	Project Adheres to Condition (Y/N) or N/A	Relevant Section of the Environmental Assessment for Justification of Meeting the Condition
18. Endangered Species	Y	4.2.2
19. Migratory Birds and Bald and Golden Eagles	Y	4.2.2
20. Historic Properties	N/A	-
21. Discovery of Previously Unknown Remains and Artifacts	Y	4.2.3
22. Designated Critical Resource Waters	N/A	-
23. Mitigation	Y	4.2.4
24. Safety of Impoundment Structures	N/A	-
25. Water Quality	Y	4.2.1
26. Coastal Zone Management	Y	Appendix E
27. Regional and Case-by-Case Conditions	Y	Appendix E
28. Use of Multiple Nationwide Permits	N/A	-
29. Transfer of Nationwide Permit Verifications	N/A	-
30. Compliance Certification	Y	To be completed by USACE at terminus of project
31. Activities Affecting structures or Works Built by the United States	Y	To be completed by USACE before beginning construction
32. Pre-Construction Notification	Y	USACE does not issue itself a pre-construction notification

2.4 Effects to Waters of the United States and Statement of Conformity

Parts of the proposed action would occur in Waters of the United States. Due to the construction activities of moving and placing stones, sediments will be stirred which will increase the turbidity and produce temporary effects to those Waters of the United States in which the project is located and in the immediate surrounding waters. These effects are considered temporary because the proposed action will increase turbidity for a short duration after stones are moved and placed. Based on the above criteria in section 2.3, the project was found to conform to the requirements for Nationwide Permit 3 (Maintenance). The project also meets the general conditions for nationwide permits, which for all alternatives, no more than minimal individual and cumulative effects are expected.

Literature Cited

NOAA (National Oceanic and Atmospheric Administration) 2019. Tides and Currents Data: Tides and Water Levels for 9418767 North Spit, CA. Accessed 10 September 2019. <https://tidesandcurrents.noaa.gov/reports.html?id=9418767>

NOAA (National Oceanic and Atmospheric Administration) 2019. National Geodetic Survey: Tidal Elevation for 9418767 North Spit, CA. Accessed 10 September 2019. https://www.ngs.noaa.gov/Tidal_Elevation/diagram.xhtml?PID=LV0361&EPOCH=1983-2001

Appendix H (Biological Assessment)

Humboldt Bay Entrance Channel Jetties

FY2020 & FY2021 Repairs and Reconstruction

Biological Assessment

2020 – 2022

1.0 Introduction

The United States Army Corps of Engineers (USACE) proposes to repair and reconstruct The Humboldt Bay entrance channel jetties in fiscal years 2020 through 2022. The USACE has prepared this biological assessment to comply with section 7 of the federal Endangered Species Act (ESA; 16 U.S.C. §§ 1531 *et seq.*). Humboldt Bay, a sprawling coastal estuary in Humboldt County, Northern California, is about 225 nautical miles north of San Francisco and 64 nautical miles south of Crescent City, California (Figure 1).

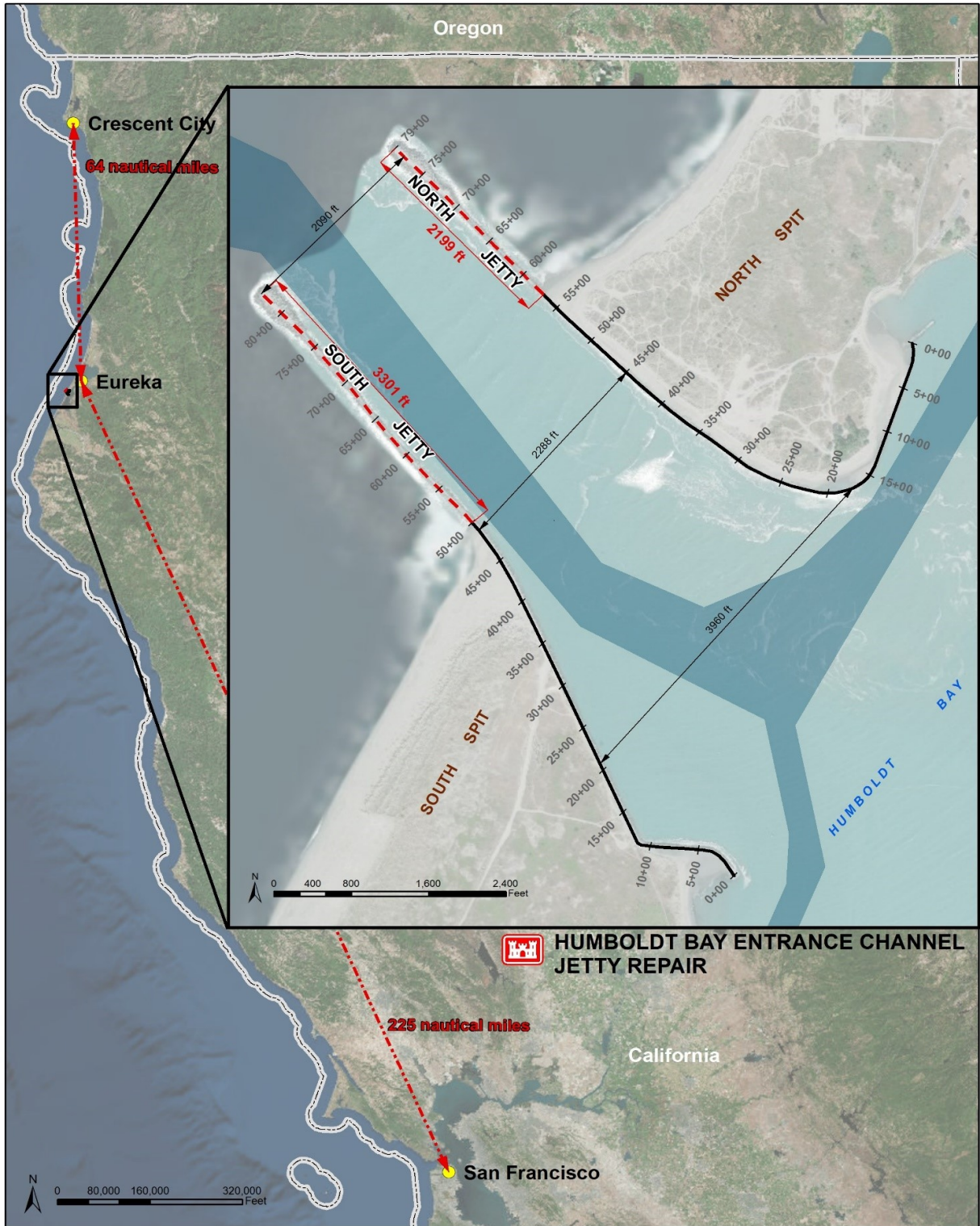


Figure 1: Humboldt Bay Entrance

2.0 Project Description

The proposed work is classified as maintenance repair and reconstruction, and as such, the design of the jetties will not be altered.

The work will entail the following actions: a) mobilizing construction equipment to the site and demobilizing same equipment at the conclusion of the project; b) rearranging existing stones on the jetty slope as needed; c) importing newly-quarried stone and rebuilding the jetty where stone is either missing or where the structural integrity has been compromised by storms and severe wave action; d) removing the concrete cap walkway and parapet wall where damaged or severely degraded, and rebuilding these structures on top of the jetty.

It is anticipated that construction equipment will entail a large crane, capable of hoisting 25-ton boulders, together with trucks and ancillary equipment capable of pouring concrete, and trucks carrying newly-quarried stone as needed. The large crane and trucks will be positioned either on the jetties themselves, or inboard (land) side of the jetties. For each jetty, a contractor's work area ("staging area") for the storage of stone and construction equipment will be located nearby. These staging areas will be landward sand dunes largely void of vegetative growth (Figures 9, 10, 11).

For the two jetties, the property directly impacted by the proposed action is exclusively owned by USACE, and therefore permitting will not be an issue. On the other hand, land on the North and South Spits that is contiguous with the jetties is owned by various government agencies (e.g. USCG, USACE, State of California), but it is all managed by the Bureau of Land Management (BLM). Therefore, prior to beginning construction, USACE will obtain a "Special-Use" permit from the BLM before proceeding.

North Jetty Repair—Detailed Information

Construction of the North Jetty is scheduled for 2020. Due to the wave climate in the Entrance Channel, construction will take place between the months of March and October.

The required stone class is 15-20 ton boulders (10'-12' across). Rock for the North Jetty will be sourced either from the Mountain Gate Quarry, in Redding, California (bulk specific gravity = 2.662) or the Liscom Hill Quarry, in Willow Creek, CA (bulk specific gravity = 2.89). USACE is testing rock quality to ensure that it meets technical criteria for jetty construction; physical-testing results and quarry inspection will be completed by mid-August 2019. It is anticipated that the mode of transportation for the quarry rock will be by truck. The maximum travel distance from the Mountain Gate quarry is 190 miles; the travel distance from the Liscom Hill Quarry is 25 miles.

In the event the stones are transported by barge to the project site, a barge will dock and unload the rock at Fairhaven Pier. Once the stones are offloaded, they will be loaded onto trucks and transported on New Navy Base Road to the staging area. This would be the last part of the trip from the source quarry and there are no expected impacts from this action.

The North Jetty staging area is 4.17 acres; it will be the primary location to store stones and construction equipment. As construction progresses, construction equipment could be stored on top of the existing jetty or on the landward sand dunes where there is no existing vegetative growth (the average distance between the jetty and existing vegetation is 120 feet). The staging area will have a perimeter fence to keep the public from entering. The parking area north of the staging area

will remain open to the public during construction, however, detour signs will be used to redirect the public away from the staging area or areas off limit that are near the jetty.



Figure 2: Staging area for North Jetty

South Jetty Repair—Detailed Information

Construction of the South Jetty is scheduled for 2021. Due to the wave climate in the Entrance Channel, construction will take place between the months of March and October.

The required stone class is 15-20 ton boulders (10'-12' across). Rock for the South Jetty will be sourced from the same locations as described in the North Jetty repair. It is anticipated that the mode of transportation for the quarry rock will be by truck along Table Bluff Road/South Jetty Road. The maximum travel distance from the Mountain Gate quarry is 181 miles; the travel distance from the Liscom Hill Quarry is 38 miles.

The South Jetty staging area is 0.76 acres; it will be the primary location to store stones and construction equipment for the South Jetty portion of the project. As construction progresses, construction equipment could be stored on top of the existing jetty or on the landward sand dunes where there is no existing vegetative growth (the average distance between the jetty and existing vegetation is 40 feet). The staging area will have a perimeter fence to keep the public from entering. The parking area and restroom facility west of the staging area will remain open to the

public during construction, however, detour signs will be used to redirect the public away from the staging area or areas off limit that are near the jetty.

Depending upon available funding and the degree of jetty degradation, the priority level of repairing various sections of the jetty has been mapped out and prioritized as follows: Priority 1—525 feet, Priority 2—725 feet, Priority 3—2,475 feet. There is no correlation between priority level and the category of repair type.



Figure 3: Staging area South Jetty

Repair Types

Repair and reconstruction of the North and South jetties will be limited to those portions below the jetty heads not covered with 42-ton concrete dolosse (measuring 15 x 15 x 15 feet). The repair work can be categorized into three types of action as described below, and as illustrated in Figure 4.

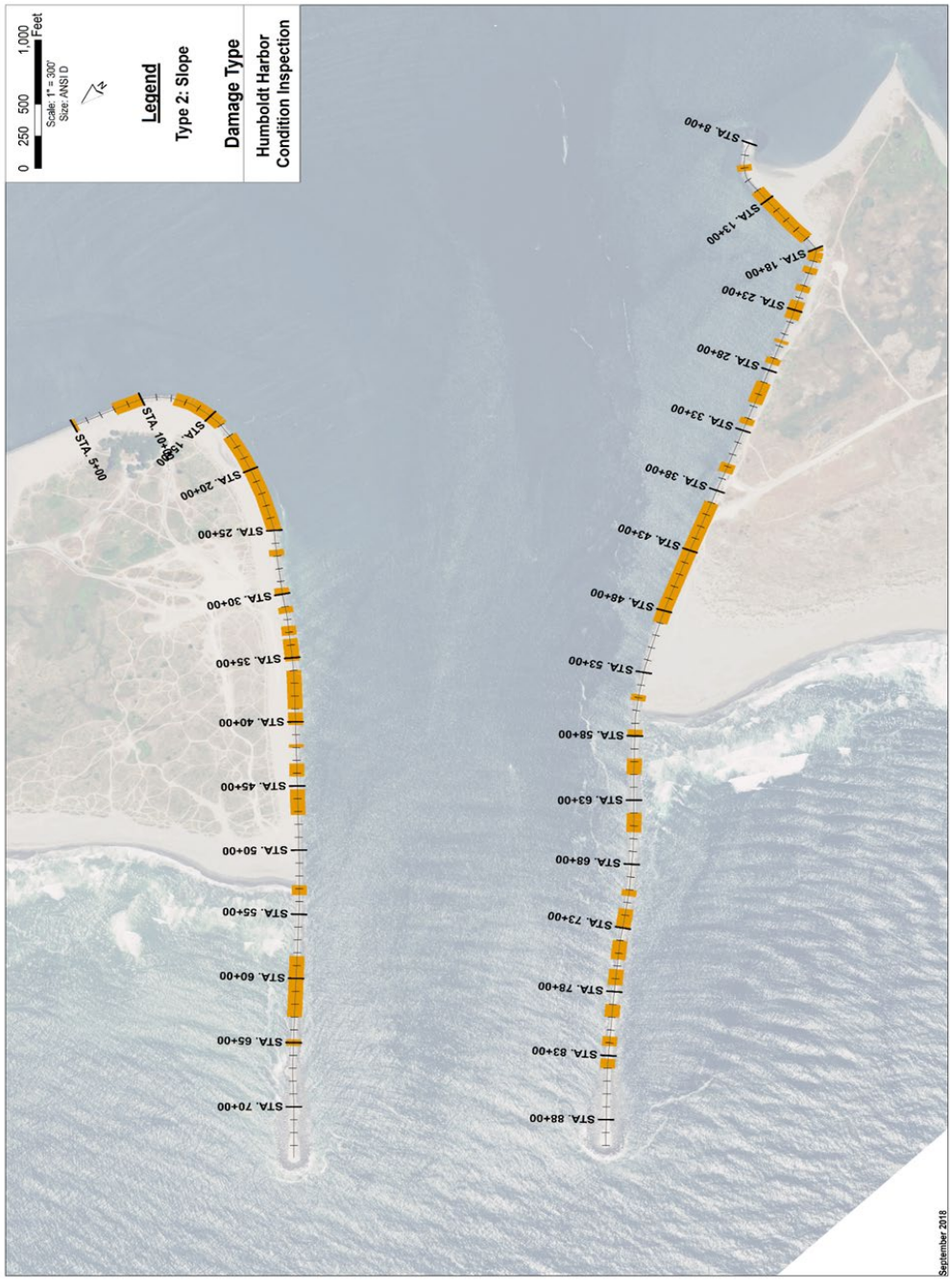
Repair Type 1— Jetty section maintains its structural integrity. Type 1 repairs involve restoring the concrete cap and parapet wall where it is severely damaged, and replacement of underlying small stones that are missing beneath the cap. Severe wave action over the years has resulted in cracking and loss of existing pieces of the cap, ranging from small, blow-hole size pieces to large scale

slumping and failure of immense sections of concrete. Huge cavities in the jetty can develop where underlying stones are exposed and gouged out by storm waves. The reconstructed cap will be composed entirely of concrete; it will have no steel reinforcement.

Repair Type 2— Jetty section maintains its structural integrity. Type 2 repairs involve resetting stones, and as needed, replacement of displaced stones on the jetty slope with newly quarried rock to restore side slopes to their pre-existing design dimensions.

Repair Type 3— Jetty section has lost its structural integrity. Type 3 repairs involve removing entire portions of jetty, and then reconstructing them, stone by stone, with both existing stones and newly quarried stones. During reconstruction, rock will be carefully placed by crane into stable, interlocking positions such that the reconstructed jetty will attain its pre-existing design dimensions. Upon completion of Type 3 repairs, a new concrete cap.





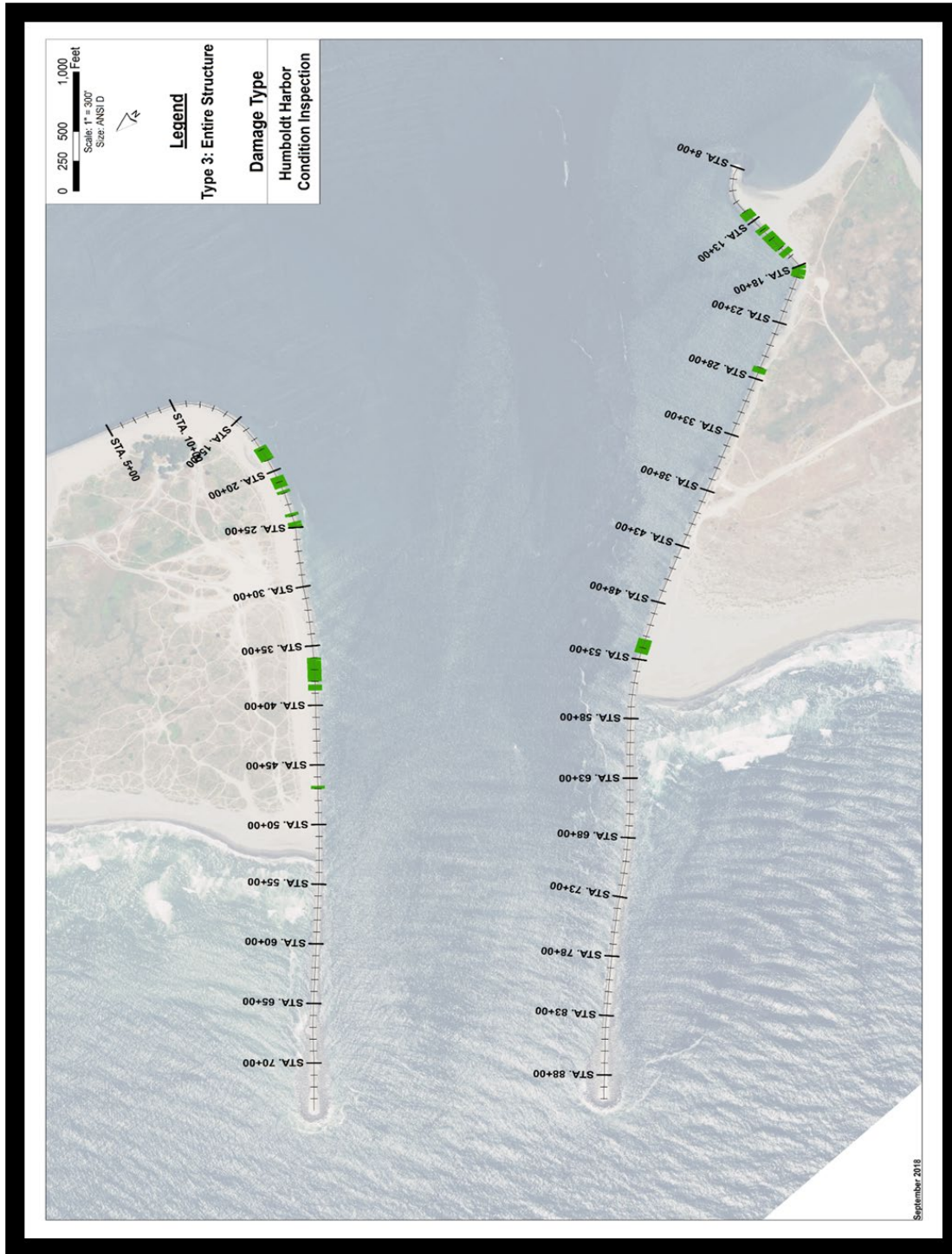


Figure 4: Repair type and locations

3.0 Action Area

The action area is defined as “all areas to be directly or indirectly affected by the Federal action and not merely the immediate area involved in the action” (50 C.F.R. § 402.02). For the proposed action, the action area includes repair and reconstruction of the North and South jetties limited to those

portions below the jetty heads not covered with 42-ton concrete dolosse (measuring 15 x 15 x15 feet). There will be 2 staging areas for the project. One adjacent to the North Jetty and one adjacent to the South Jetty (Figure 2 and Figure 3). Rock for the Jetty repairs will be sourced either from the Mountain Gate Quarry, in Redding, California (bulk specific gravity = 2.662) or the Liscom Hill Quarry, in Willow Creek, CA and would be hauled on existing roads to the project from these quarries.

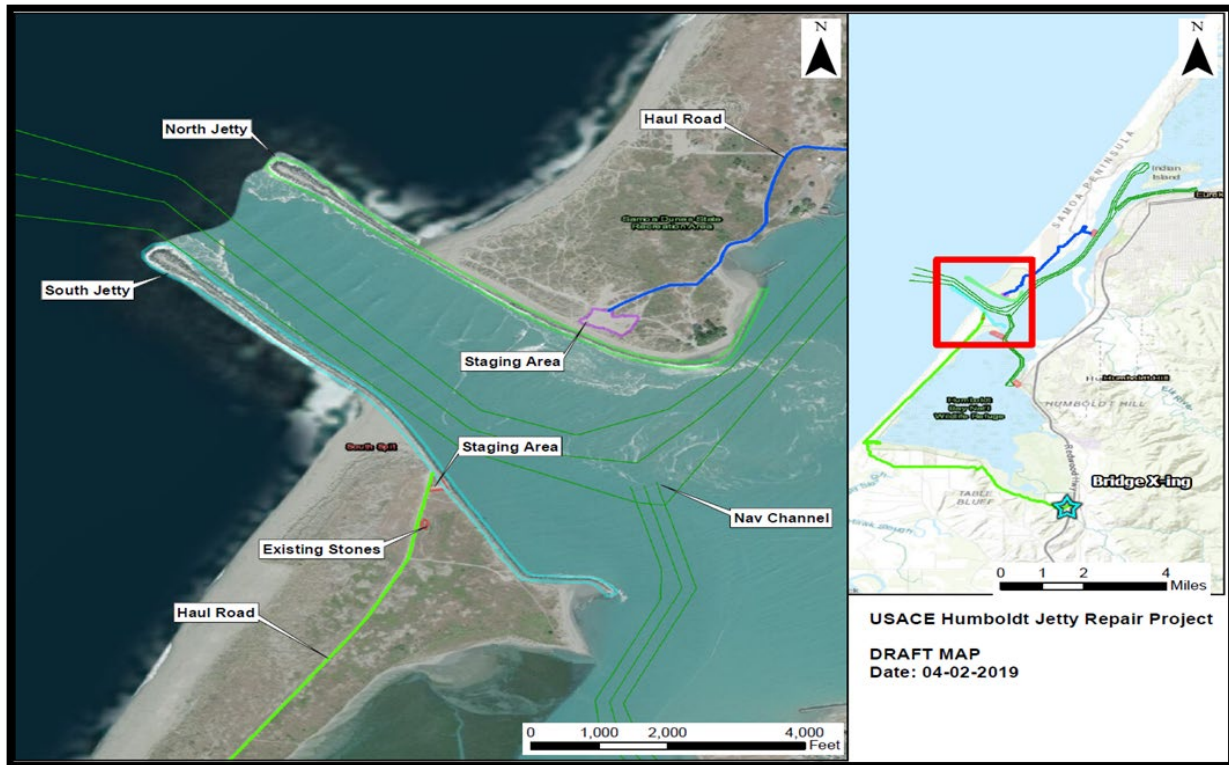


Figure 5. Location of haul roads and staging areas.

4.0 USFWS Listed Species and Critical Habitat

On August 6, 2018, an official species list was generated using the USFWS’ Information for Planning and Consulting (IPaC) website (Appendix A). The species list identified 11 threatened or endangered species that may be present in the action area. However, based on the project location, discussions with USFWS have indicated that only the threatened Western snowy plover (*Charadrius nivosus nivosus*) has the potential to be affected by the proposed action; this species is discussed below. Additionally, critical habitat for this species is present in the action area for the South Jetty repair.

Western snowy plover (*Charadrius nivosus nivosus*)

The Pacific coast population of the western snowy plover was listed as threatened on March 5, 1993(Federal Register (FR); 58 FR 12864). On June 19, 2012, U.S. Fish and Wildlife Service (USFWS) published a final rule of critical habitat along the coasts of California, Oregon, and Washington(77 FR 36728). A final recovery plan was released in 2007 (USFWS 2007). The western snowy plover is a small shorebird, about 6 inches long, with a thin dark bill, pale brown to gray upper parts, white or buff colored belly, and darker patches on its shoulders and head, white

forehead and supercilium (eyebrow line). Snowy plovers also have black patches above their white forehead and behind the eye. Juvenile and basic (winter) plumages are similar to adult, but the black patches are absent. Some breeding males, especially in the southern portion of the species' range, may exhibit a rusty or tawny cap. Their dark gray to black legs are a useful characteristic when comparing them to other plover species (Page et al. 1995).

General Distribution

The western snowy plover nests along the Pacific Coast from Damon Point, Washington to Bahia Magdalena, Baja California, Mexico (USFWS 2007). Snowy plovers that nest at inland areas are not considered part of the Pacific coast population, although interior-nesting plovers will winter along the Pacific coasts. Window surveys along the Pacific Coast indicate that the numbers of breeding snowy plovers have ranged from a low of 976 in 2000 to a high of 1,904 in 2004; in 2006 1,723 plovers were counted along the Pacific Coast (USFWS 2007).

Habitat and Biology

The Snowy Plover is a small pale shorebird that nests on beaches and salt pannes in western North America. Snowy plovers nest on barren to sparsely vegetated beaches, salt flats, dredge spoils, levees, river bars, and salt evaporation ponds (Page et al. 1995). Many snowy plovers nest and overwinter in these same areas. Snowy plovers choose to nest on low, barren to sparsely vegetated dry salt ponds as well as on levees and islands, and at pond edges (Page et al. 2000); they preferentially use light-colored substrates such as salt flats and shell fragments and wood debris to provide crypsis. Nesting areas are located near water, where prey (usually brine flies and other insects) are abundant. In some areas, snowy plovers nest within dry salt ponds; in other areas where ponds typically hold some water through the summer, nests are located primarily on levees and pond edges. Often, nests are located near disruptive objects such as rocks or surface irregularities, and may be constructed in depressions created by footprints and vehicles. Nests consist of a depression scratched into the substrate sometimes lined with shell fragments, salt crystals, plant debris, fish bones, exoskeletons, and pebbles or similar local materials (Page et al. 1995, 2000).

The snowy plover breeding season for the distinct population segment in coastal California (Pacific Coast Western Snowy Plover), from early courtship to fledging of late-season hatchlings, is approximately 1 March to 30 September in northern California. The Snowy Plover is semi-aggregating wading bird and typically is somewhat site-faithful, but may move among adjacent breeding and wintering areas and breeding where conditions remain suitable.

Snowy plovers consume flies, beetles, crabs, polychaete worms, amphipods, sand hoppers, moths, grasshoppers, small crustaceans, mollusks, and plant seeds (Page et al. 1995). They forage by pursuing their prey on foot, picking from the surface or probing in sand and loose soils, and will charge dense aggregations of flies, snapping their bill at those flushed (Purdue 1976, Page et al. 1995)

Some snowy plovers remain in their coastal breeding areas year-round while other individuals are migratory.

Threats

Degradation and use of habitat for human activities has been largely responsible for the decline in the snowy plover breeding population (Page et al. 1995). Other important threats to the snowy plover are mammalian and avian predators, and human disturbance (Page et al. 1995). Human disturbance (including disturbance from domestic dogs) can lead to nest abandonment or direct trampling of eggs or chicks. In addition, because young chicks are dependent on adults for protection, human disturbance resulting in the separation of chicks from adults can lead to the death of the chicks. Precocial chicks feed themselves but require the protection of an adult for brooding and evasion of predators (Page et al. 1995). Additional pressures include oiling, entanglement in fishing line, striking objects, and shooting.

Avian predators, particularly corvids (crows and ravens), are increasingly becoming an issue for snowy plover reproductive success. American crows and common ravens are adept at finding snowy plover nests and preying on eggs. Corvid numbers are increasing throughout California, at least partially in response to increased availability of food from anthropogenic sources, such as garbage dumps (Boarman and Heinrich 1999, Verbeek and Caffrey 2002). Other avian predators, including loggerhead shrikes (*Lanius ludovicianus*), American kestrels (*Falco sparverius*), and northern harriers have been documented taking snowy plover chicks, and in some areas, have dramatically reduced fledging success.

Western Snowy Plover Critical Habitat

Critical habitat for the Pacific coast population of the western snowy plover was most recently designated in 2012 (USFWS 2012b). This revised designation establishes approximately 24,527 ac in Washington, Oregon, and California; approximately 6,077 ac in four units in Washington, 2,112 ac in nine units in Oregon, and 16,337 ac in 45 units in California. The USFWS based these designations on four primary constituent elements, including sandy beaches, dune systems immediately inland of an active beach face, salt flats, mud flats, seasonally exposed gravel bars, dredge spoil sites, artificial salt ponds and adjoining levees with:

1. Areas that are below heavily vegetated areas or developed areas and above the daily high tides;
2. Shoreline habitat areas for feeding, with no or very sparse vegetation, that are between the annual low tide or low-water flow and annual high tide or high-water flow, subject to inundation but not constantly under water, that support small invertebrates such as crabs, worms, flies, beetles, sand hoppers, clams, and ostracods (i.e., essential food sources);
3. Surf or water deposited organic debris such as seaweed or driftwood located on open substrates such as those mentioned above (essential to support small invertebrates for food and to provide shelter from predators and weather for reproduction), and provide cover or shelter from predators and weather and assists in avoidance of detection for nests, chicks, and incubating adults; and
4. Minimal disturbance from presence of humans, pets, vehicles, or human-attracted predators, which provide relatively undisturbed areas for individuals and population growth and for normal behavior.

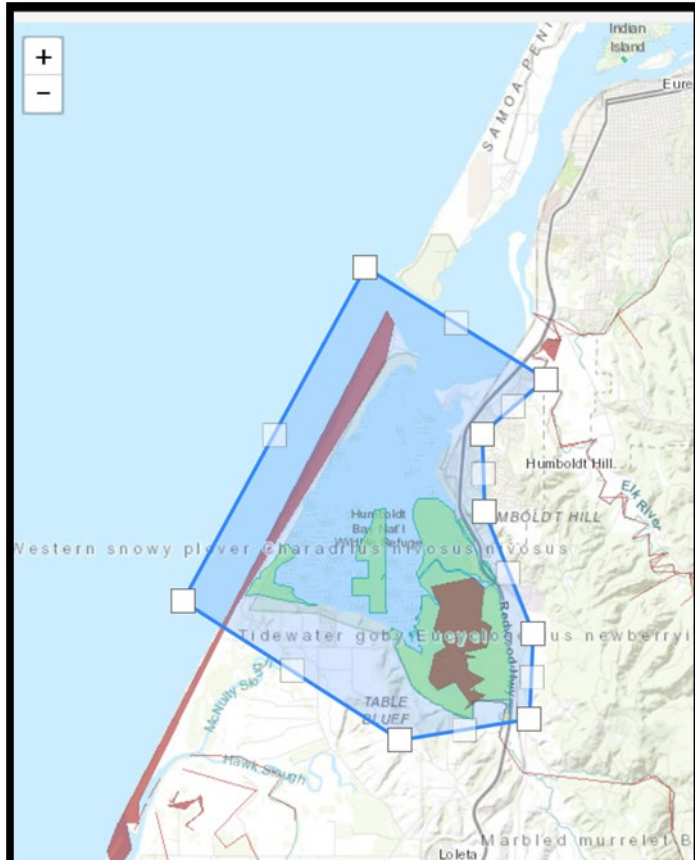


Figure 6: Critical habitat (colored Orange) Snowy Plover in relation to the project

5.0 Effects of the Action

Western snowy plovers are reported to roost nearby, and nest about 0.5 mile south of the proposed project area. Western snowy plovers have been reported from the immediate beach area of the South Jetty during winter roosting periods, and in 2016-2018 during the nesting season (BLM map 2019).

The proposed Project may pose disturbance from construction traffic and noise in the western snowy plover habitat. In addition, increased access and presence of construction crews may generate enhanced public attraction and trash. Trash attracts plover predators such as corvids (Lau 2015). Increased predation in this area may affect plover breeding success and recruitment locally. Disturbance due to repeated loud noise or the extended presence and movement of people, jetty boulders, and heavy equipment near suitable snowy plover during breeding and wintering periods may alter the bird's behavior in ways that can result in take: risk of direct mortality, reduction in nesting success through nest abandonment, decreased nest attendance during brood rearing, or decreased foraging and roosting opportunities. Such alterations may result in temporary habitat loss (modification) due to plover avoidance of these areas that have otherwise suitable habitat but high levels of repeated noise and visual disturbance; abandonment of nests, eggs, or young by nesting pairs; a reduction in foraging efficiency if high-quality foraging areas are impacted; and increased movement or flushing, or altered activity patterns, that reduce energy reserves and increase predation risk. If plovers are permanently displaced from this adjacent South Spit HRA, a area of high nesting success and productivity, they may experience increased levels of predation and decreased reproductive success in beach-facing habitats further south.

There is the potential for direct impact to young through being crushed by construction equipment moving through the area.

Artificial perches could be created by maintenance of inactive construction equipment adjacent to sensitive habitat areas, and along any rigid fencing used by the project. This could increase predation risk by providing increase activity for predator bird species.

Surveys before and during construction would be conducted for signs of nesting snowy plovers (eggs, chicks, adults, and scrapes), and appropriate buffers distances (i.e., 330 ft during construction activities) would be implemented and checked regularly to ensure adequate separation between Project activities and breeding and/or wintering snowy plovers.

Noise: Humboldt Bay is an ocean environment with ambient noise mostly created by crashing waves. With a height of 2m, crashing waves can create noise with a sound pressure level of 78 dB (Bolin 2010); similar to that of metropolitan, urbanized areas which can be as high as 80 dB (DOT 2017). Noise from the project would mainly be associated with the transport, placing of new rock, and resetting of old rock, with most construction equipment generating a pressure level of 85 dB at 50 ft from the source, comparable to the ambient noise level of 78 dB for 2 m crashing waves. Trucks would be equipped with mufflers that meet state or local standards for noise suppression to minimize any effects from noise. Transporting rock from the staging area and placing it on the jetty would create noise similar to background noise levels. Transportation by barge to the site would not be discernible due to distance and background noise levels. Snowy Plover habitat is located near the jetty. With a distance of 600 feet or 300 feet from construction equipment, sound pressure levels are estimated to range between 48 – 77 dB which is below the 92 dB harassment threshold used for prior consultations for Snowy Plover (USFWS 2012). Effects to Snowy Plovers due to incidental harassment would therefore be less than significant and only take place during construction of the jetty. Therefore, the agency preferred plan would entail less than significant impacts from noise.

Equipment	Sound Pressure Level "Noise Level" at 50 ft (dB)	Sound Pressure Level "Noise Level" at 300 ft (dB)	Sound Pressure Level "Noise Level" at 600 ft (dB)	Typical Duty Cycle
Auger Drill Rig	85	69	63	20%
Backhoe	80	64	58	40%
Compactor (ground)	80	64	58	20%
Concrete Mixer Truck	85	69	63	40%
Concrete Pump	82	66	60	20%
Crane (mobile or stationary)	85	69	63	20%
Dozer	85	69	63	40%
Dump Truck	84	68	62	40%
Excavator	85	69	63	40%
Front End Loader	80	64	58	40%
Generator (25 KVA or less)	70	54	48	50%
Generator (more than 25 KVA)	82	66	60	0%
Grader	85	69	63	40%
Pumps	77	61	55	50%
Scraper	85	69	63	40%
Tractor	84	68	62	40%

KVA = kilivolt amps

Source: FHWA

Calculation of Sound Pressure Level (dB):

$$SPL_2 = SPL_1 - 10\text{LOG}(r_2/r_1)$$

Where:

SPL_2 = sound pressure level (dB) at distance r_2

SPL_1 = sound pressure level (dB) at distance r_1

r_2 = distance from source

r_1 = distance from source

$$r_1 < r_2$$

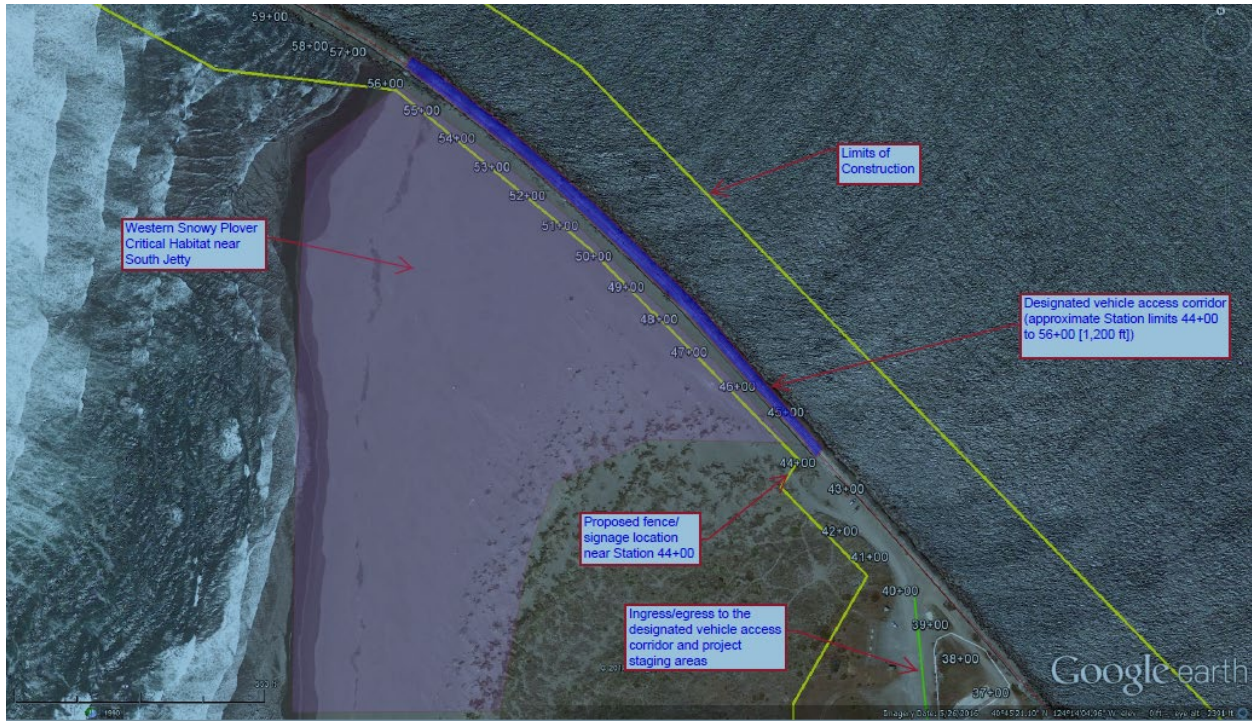


Figure 7: Site overview of limits of vehicle access and haul route.

6.0 Determination of Effects

For the North Jetty repair and reconstruction, it is a no effect determination based on the lack of habitat and the likelihood of the Snowy Plover not being present due to high level of ATV use and heavy pedestrian disturbance.

The South Jetty repair and reconstruction is likely to affect, but not adversely affect the Snowy Plover and its critical habitat or jeopardize the continued existence of the species. The following avoidance and minimization measures will be included into the plans and specifications for the project for the South Jetty and reconstruction:

1. Heavy equipment and work vehicles shall not access at any time the beach directly south of the seaward end of the designated vehicle access corridor on top of the jetty and extending 1,200 ft inland (to the southeast), along the NW to SE existing access road ;. The designated vehicle access corridor begins near Station 44+00 and extends to west to the beachline (e.g. approximately near Station 56+00). A combination of exclusionary fencing and/or signage will be placed near Station 44+00.
2. The designated vehicle access corridor will not be permanently altered by the proposed project. No widening or alteration of the corridor near designated Western Snowy Plover critical habitat will occur. If sand berms are created along the sides of the corridor during

construction operations, the corridor will be restored to pre-project conditions in order to facilitate Western Snowy Plover movement between inland and beach areas;

3. If construction-related activities occur during the breeding season, preconstruction surveys by a skilled ornithologist or U.S. Fish and Wildlife Service (Service) approved biological monitor for breeding Western Snowy Plovers will be conducted within 15 days prior to any construction-related activities, in all appropriate habitat areas within 600 feet of limits of work;
4. If breeding Western Snowy Plovers are not detected, a biological monitor will be present at the commencement of and during all construction related activities along and adjacent to the designated vehicle access corridor to ensure that no Western Snowy Plovers have begun breeding during all preconstruction and construction activities;
5. If breeding Western Snowy Plover are detected, disturbance-free buffer zones will be established ranging from a minimum of 300 feet to 600 feet from any nests, as determined by the biological monitor in coordination with the Service, Bureau of Land Management (BLM), and California Department of Fish and Wildlife (CDFW). The disturbance-free buffer zone will be observed during the breeding season (March 1 to September 30), unless otherwise informed by the Service, access to the designated vehicle access corridor will remain open. In addition, the biological monitor will be present during all construction related activities to ensure disturbance-free buffer zones are observed;
6. A survey of breeding Western Snowy Plovers will be conducted at a minimum of two times per week during construction and once at pre-construction and post-construction. The survey post-construction will be conducted within 7 days after all equipment and materials are removed from the site. Monitoring reports will be provided to the Service on a weekly basis;
7. All construction equipment mufflers will be directed away from areas of critical habitat to reduce noise disturbance to the maximum extent practicable;
8. Only approved haul routes from the staging area to the jetty will be utilized within the construction limits of work. No off-road travel, or new temporary roads will be constructed.
9. Care will be taken not to enter into the designated Western Snowy Plover protection areas and nearby dune communities during construction;
10. Preventive measures will be taken so as not to create additional perches for avian predators. During non-construction hours, equipment taller than 20 feet stored within the staging areas will face away (bayside) from Western Snowy Plover critical habitat area and have booms lowered at an angle that will not provide visibility to the Western Snowy Plover critical habitat by avian predators;
11. Contractors and work crews shall not be allowed to have pets onsite at any time.
12. Garbage will be collected daily from the worksite, and care will be taken not to leave garbage or litter within the construction footprint;
13. The biological monitor will present a Western Snowy Plover awareness-training program prior to construction activity for all construction staff. This program will describe the following information:
 - a) The behavior of the Western Snowy Plover and its distribution and habitat on South Spit,
 - b) Threats to Western Snowy Plover,
 - c) The detrimental effects of feeding wildlife,
 - d) The penalties for disobeying restrictions,
 - e) A map showing the zone and proper best management practices for minimizing beach impact,

- f) The proper procedure to address injured or dead Western Snowy Plovers, and contact information of the biological monitor, USACE construction personnel, and USACE environmental POC.
14. Best Management Practices will be implemented for oil and fuel handling, and an onsite spill-response plan will be required on-site and implemented if necessary;

7.0 Prepares and Reviewers

Preparer:

- Stephen M. Willis, Senior Biological Science Environmental Manager, United States Army Corps of Engineers, San Francisco District

Reviewers:

- Eric F. Jolliffe, Senior Biological Science Environmental Manager, United States Army Corps of Engineers, San Francisco District
- Dr. Tessa E. Beach, Chief, Environmental Sections, United States Army Corps of Engineers, San Francisco District

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Appendix I (BA/ Essential Fish Habitat Assessment)



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
450 GOLDEN GATE AVE.
SAN FRANCISCO, CA 94102

Environmental Section B

Mr. Matt Goldsworthy
National Marine Fisheries Service
1655 Heindon Road
Arcata, CA 95521

Dear Mr. Goldsworthy:

Pursuant to section 7 of the Endangered Species Act of 1973 (ESA), as amended (ESA; 16 U.S.C. §§ 1531 *et seq.*), the U.S. Army Corps of Engineers San Francisco District (USACE) is requesting concurrence from the National Marine Fisheries Service (NMFS) that the proposed Humboldt Bay Entrance Channel Jetties FY2020 & FY2021 Repairs and Reconstruction project is not likely to adversely affect ESA-listed threatened or endangered Southern Oregon/Northern California Coast (SONCC) coho salmon (*Oncorhynchus kisutch*), California Coastal Chinook salmon (*O. tshawytscha*), Northern California steelhead (*O. mykiss*), the Southern DPS of North American green sturgeon (*Acipenser medirostris*), or the respective designated critical habitats of these species. In addition, USACE is requesting consultation pursuant to section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA; Public Law 104-297) on essential fish habitat (EFH) as identified in the Pacific Groundfish Fishery Management Plan (FMP). The USACE has determined that the proposed project may affect EFH for Pacific groundfish.

The proposed project is classified as maintenance repair and reconstruction, and as such, the design of the jetties will not be altered. Work would entail the following actions: a) mobilizing construction equipment to the site and demobilizing same equipment at the conclusion of the project; b) rearranging existing stones on the jetty slope as needed; c) importing newly-quarried stone and rebuilding the jetty where stone is either missing or where the structural integrity has been compromised by storms and severe wave action; d) removing the concrete cap walkway and parapet wall where damaged or severely degraded, and rebuilding these structures on top of the jetty. It is anticipated that construction equipment would entail a large crane, capable of hoisting 25-ton boulders, together with trucks and ancillary equipment capable of pouring concrete, and trucks carrying newly-quarried stone as needed. The large crane and trucks would be positioned either on the jetties themselves, or on the inboard (land) side of the jetties.

Repair of the Humboldt Bay North Jetty and South Jetty is scheduled for 2020 and 2021, respectively. Due to the wave climate in the Entrance Channel, construction would take place between the months of March and October. The required stone class is 15-20 ton boulders (10'-12' across). Rock for the Jetty repairs will be sourced either

from the Mountain Gate Quarry, in Redding, California (bulk specific gravity = 2.662) or the Liscom Hill Quarry, in Willow Creek, CA and would be hauled on existing roads to the project from these quarries. Staging areas for rock and equipment would be located landward of the existing jetties

Repair and reconstruction of the North and South jetties would be limited to those portions below the jetty heads not covered with 42-ton concrete dolosse (measuring 15 x 15 x15 ft). The repair work can be categorized into three types of action as shown in the three panels of Figure 1 and described below:

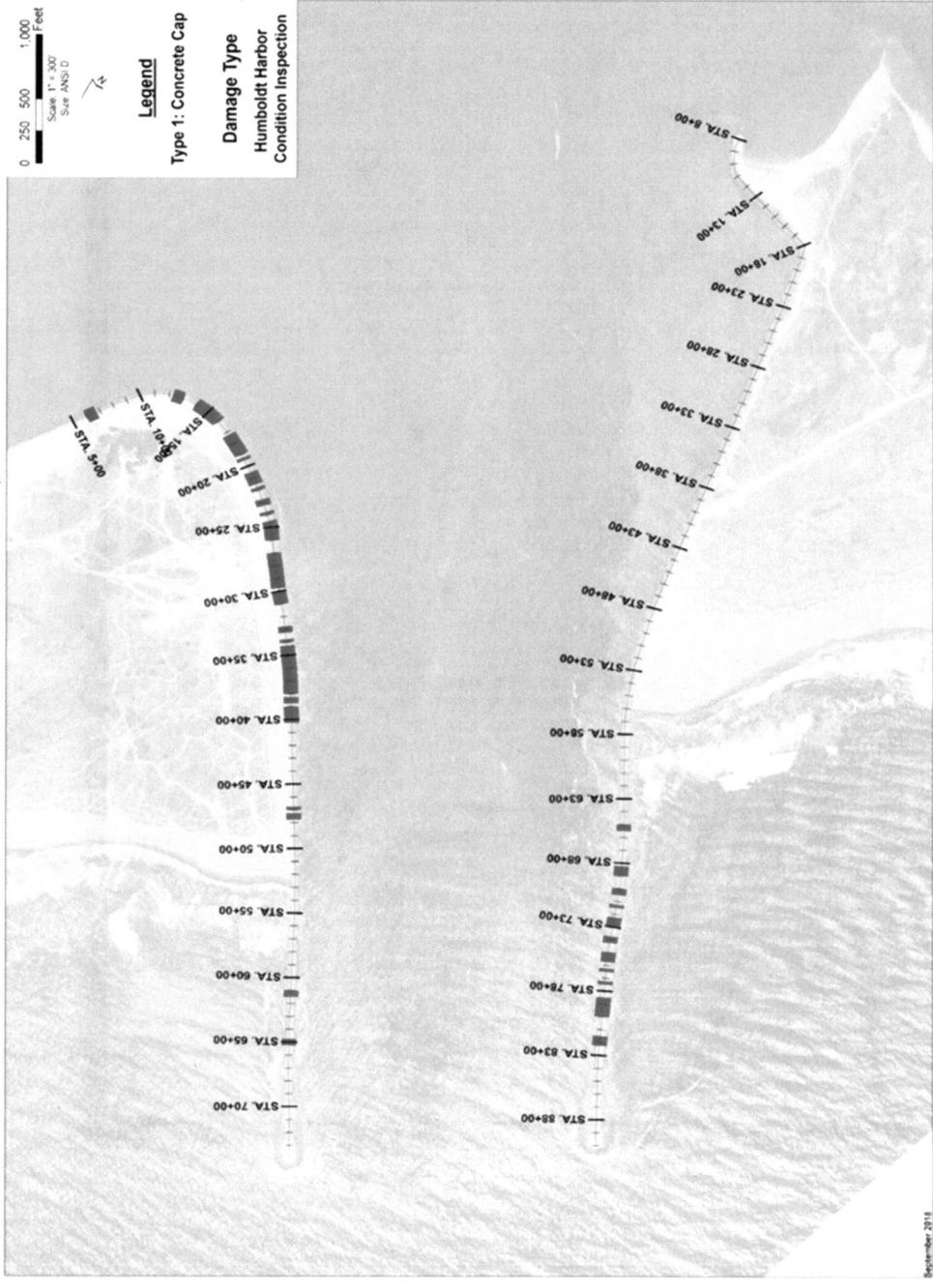
- Repair Type 1— Jetty section maintains its structural integrity. Type 1 repairs involve restoring the concrete cap and parapet wall where it is severely damaged, and replacement of underlying small stones that are missing beneath the cap. Severe wave action over the years has resulted in cracking and loss of existing pieces of the cap, ranging from small, blow-hole size pieces to large scale slumping and failure of immense sections of concrete. Huge cavities in the jetty can develop where underlying stones are exposed and gouged out by storm waves. The reconstructed cap will be composed entirely of concrete; it will have no steel reinforcement.
- Repair Type 2— Jetty section maintains its structural integrity. Type 2 repairs involve resetting stones, and as needed, replacement of displaced stones on the jetty slope with newly quarried rock to restore side slopes to their pre-existing design dimensions.
- Repair Type 3— Jetty section has lost its structural integrity. Type 3 repairs involve removing entire portions of jetty, and then reconstructing them, stone by stone, with both existing stones and newly quarried stones. During reconstruction, rock will be carefully placed by crane into stable, interlocking positions such that the reconstructed jetty will attain its pre-existing design dimensions. Upon completion of Type 3 repairs, a new concrete cap would be installed.

Repair work would occur in multiple locations over more than 1-mile-long jetties (Figure 1). However, in-water work would be performed entirely by the crane, and consist only of relocating existing boulders from the channel bottom to the jetty, or of placing new boulders from the landward side onto the jetties. Boulder placement would need to be slow and deliberate. All concrete cap construction would occur in the dry on the upper portion of the jetty.

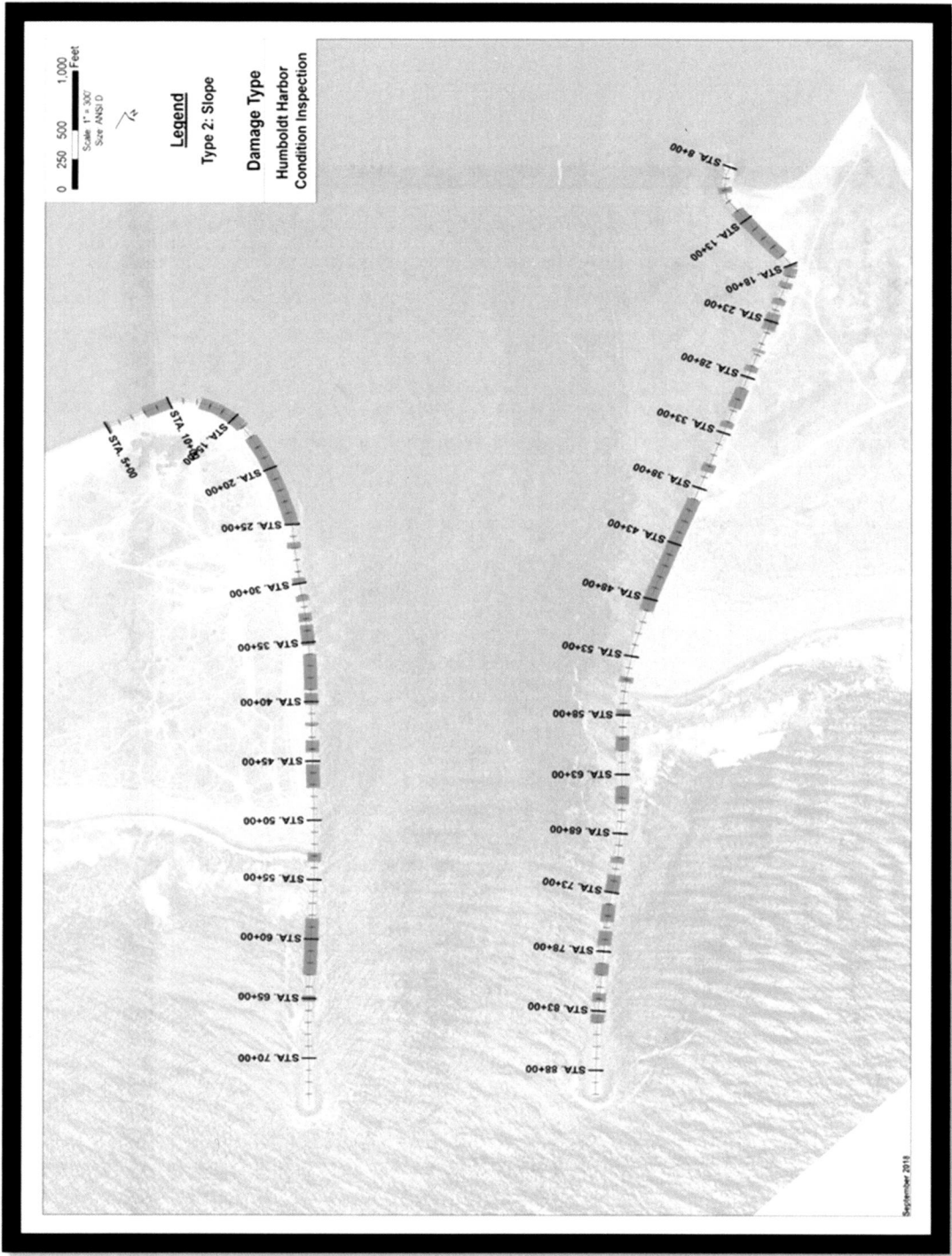


Legend

Type 1: Concrete Cap
 Damage Type
 Humboldt Harbor
 Condition Inspection



September 2018



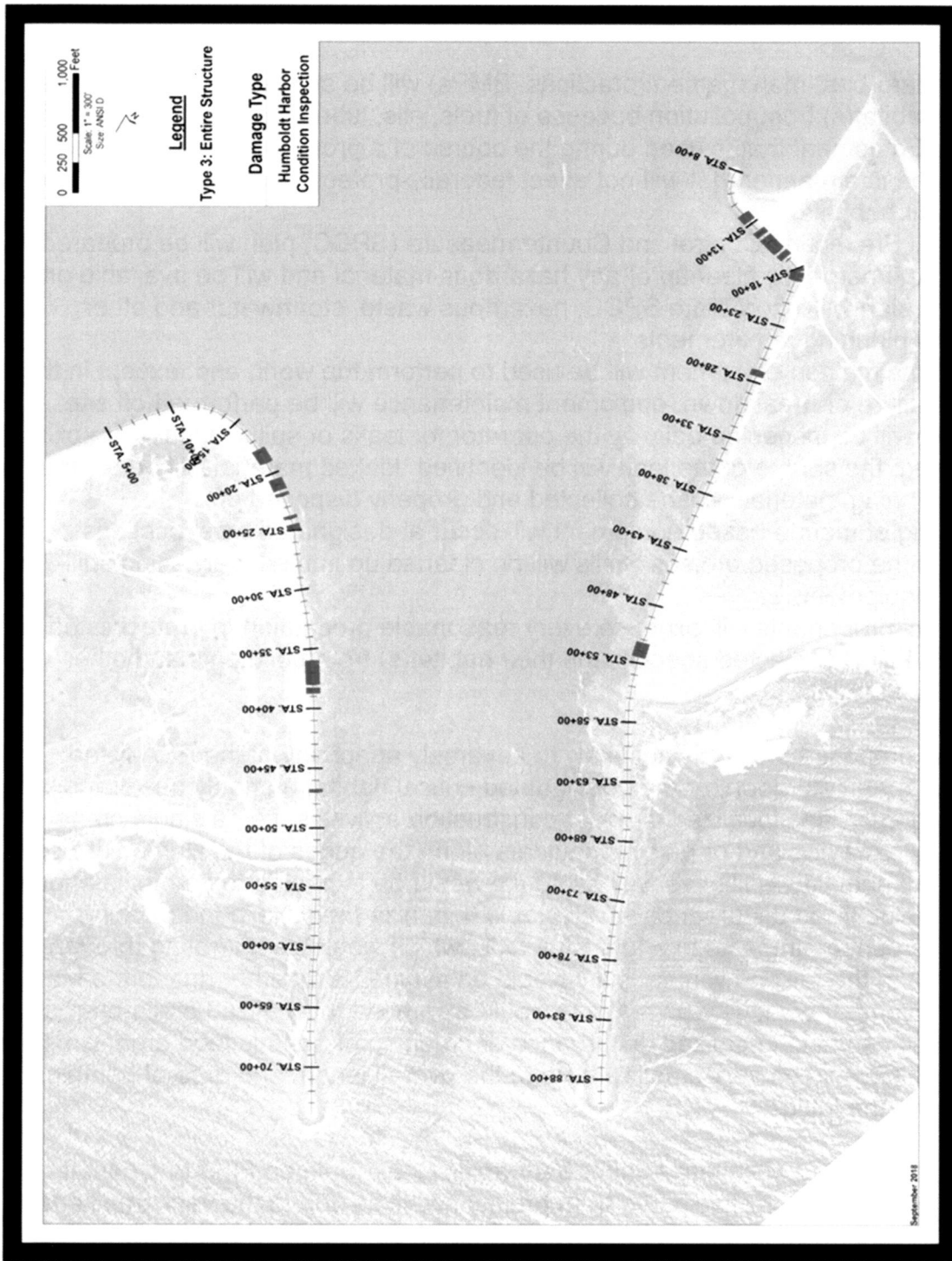


Figure 1: Repair type and locations

The following general avoidance and minimization measures would be implemented:

- * Standard best-management practices (BMPs) will be applied to protect species and their habitat(s) from pollution because of fuels, oils, lubricants, and other harmful materials. Equipment that is used during the course of a proposed project will be fueled and serviced in a manner that will not affect federally-protected species in the action area or their habitats;
- * A Spill Prevention Control and Countermeasure (SPCC) plan will be prepared to address the emergency cleanup of any hazardous material and will be available on site. The SPCC plan will incorporate SPCC, hazardous waste, stormwater and other emergency planning requirements;
- * Well-maintained equipment will be used to perform the work, and, except in the case of a failure or breakdown, equipment maintenance will be performed off site. Equipment will be inspected daily by the operator for leaks or spills. If leaks or spills are encountered, the source of the leak will be identified, leaked material will be cleaned up, and the cleaning materials will be collected and properly disposed of;
- * Fueling of marine-based equipment will occur at designated safe locations adjacent to the proposed project. Spills will be cleaned up immediately using spill-response equipment;
- * Project proponents will exercise every reasonable precaution to protect listed species and EFH-protected species and their habitat(s) from pollutants and other deleterious materials.

The proposed project is not likely to adversely affect any of the ESA-listed salmonids, green sturgeon, or their designated critical habitat primarily due to the very small, temporary, and localized in-water construction activities, i.e., a single crane deliberately retrieving and or placing boulders along the edges of the Humboldt Bay entrance channel. Juveniles as well as adults would be expected to be motile enough to avoid the localized disturbance which would minimize their likelihood of being physically crushed. Impacts to adult salmonids, which would be migrating through the project area in the fall and winter, likely would be avoided altogether due to the March through November work windows. Noise would be limited to localized chain-on-rock or rock-on-rock contact. Localized disturbance or crushing of benthic food organisms may occur but this would be very small relative to the overall length and area of benthic habitat along the jetties.

No effect to EFH covered under the Pacific Coast Salmon FMP or Coastal Pelagic Species FMP is anticipated from project activities due to the very small and localized disturbances to habitat in the water column as described above. Prey fishes such as anchovies should not be killed or their behavior modified to the extent that their function as food organisms would be compromised.

We have determined that the proposed project may affect Pacific Groundfish EFH through localized disturbance and minor increases in turbidity especially near the

benthos, and possible mortality of benthic prey organisms due to physically being crushed or entombed. These effects would be small, temporary, and localized along the jetties, and there is a possible positive impact to areas for eelgrass to colonize once the project is complete.

We appreciate your time and consideration. We request your review and concurrence with our determination as well as any EFH recommendations you may have. Please contact Mr. Stephen M. Willis by phone at 415-503-6861 or by email at Stephen.m.willis2@usace.army.mil, if you have any questions regarding this request. Please note our address has changed. It is now 450 Golden Gate Avenue, Floor 4, San Francisco, CA 94102.

Sincerely,

A handwritten signature in cursive script that reads "Tessa Beach".

Dr. Tessa E. Beach
Chief, Environmental Sections

Appendix J (Letter to State Historic Preservation Officer)



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
CORPS OF ENGINEERS
450 Golden Gate Avenue
SAN FRANCISCO, CALIFORNIA 94102

REPLY TO
ATTENTION OF

Environmental Planning Branch

Julianne Polanco
State Historic Preservation Officer
Office of Historic Preservation
P.O. Box 942896
Sacramento, California 94296-0001

Subject: U.S. Army Corps of Engineers, Operations and Maintenance Humboldt Bay Jetty Repair, Humboldt County, California.

Dear Ms. Polanco,

The U.S. Army Corps of Engineers San Francisco District (USACE) is consulting with you pursuant to section 106 (16 U.S.C. 470) the National Historic Preservation Act (NHPA) of 1966, as amended for the Operations and Maintenance of the "Humboldt Bay Jetty Repair Project in Humboldt County, California." We have also consulted with Tribal Historic Preservation Offices of The Wiyot Tribe, Blue Lake Rancheria, and the Bear River Band of the Rohnerville Rancheria. This consultation letter provides USACE's establishment of an undertaking. We are seeking your views on (1) our delineation of the Area of Potential Effects (APE) and (2) the level of effort to identify eligible or listed historic properties within the APE, as well as (3) concurrence with our finding of no historic properties affected pursuant to 36 CFR § 800.4 (d)(1).

We have developed a draft Environmental Assessment (EA) to comply with the National Environmental Policy Act (NEPA) and we are coordinating the NHPA and NEPA to simplify the compliance process and improve efficiency (36 CFR § 800.3(b)). The Humboldt Jetty Repair's Project Delivery Team (PDT) is releasing the draft EA for a public comment period that extends from October 18, 2019 to November 16, 2019 (30 days). The EA describes the environmental setting and provides an effects analysis in accordance with NEPA. The public, Native American tribes, local agencies, and interested consulting parties have been notified of the availability of the draft EA. Comments will be accepted and addressed pursuant to section 106 (36 CFR § 800.2(d)) and USACE 33 CFR § Part 230 (Corps procedures for implementing NEPA).

The Humboldt Jetties were previously determined eligible for the NRHP under criterion a) association with the opening of the West, industrial development of the hydraulic rail car, industrial expansion of the timber and mining industries; and criterion c) for their significant and distinguishable construction. We have determined that the jetties are also eligible under criterion b) for their association with the USACE engineer Orville Magoon who designed the jetties and used 5,000 42-short-ton dolosse around the jetties heads. The history of the Jetties is discussed in the Historic Properties Survey Report (Enclosure 5).

Location and Description of the Undertaking

The USACE's Operations and Maintenance program is restoring the entrance jetties to Humboldt Bay to their original design dimensions and restoring safe navigation to and from Humboldt Bay.

Humboldt Bay is a sprawling Northern California coastal estuary 225 nautical miles North of San Francisco, 64 nautical miles South of Crescent City and in close proximity to the city of Eureka in Humboldt County, California (Enclosure 1).

The proposed project would repair the jetty structures to their original engineered design; reusing as many displaced armoring stones as possible or replacing them with newly quarried stones (from a certified quarry) to refurbish damaged grades, then replacing the concrete covering to fill in the gaps and restore the engineered integrity. The new stone will be barged or trucked to the project staging areas and transported to the jetty restoration sites using a crane, loader, backhoe or dump trucks to refit the jetties interior structure, slopes, and concrete cap where needed.

There is no proposed ground-disturbance occurring at or near any of the identified sites on either the North or South Spits. Equipment will be delivered to the jetties and construction will take place from the top of jetty. Minimal surface disturbance will occur in areas directly adjacent to the jetties where large toppled stones will be lifted back onto the slopes. Equipment may work picking up loose stones from 150 feet from the edge of the jetty to reach large ejected stones. Small rubble stones will remain in place and holes will be filled with newly quarried stone. Armoring stones will be lifted into place by a crane.

Area of Potential Effects

The Area of Potential Effect (APE) is determined through mission authorization, reviews of project plans, estimations of maximum potential for ground disturbance, topographic and geographical constraints, etc. The Humboldt Bay Entrance Channel is separated by two long spits of sand approximately 2000 feet at entrance and 3000 feet at their widest that divide North Jetty and South Jetty from Humboldt Bay. The jetties are attached to the Spit at the entrance to Humboldt Bay. The North Jetty is 7,899 feet and curved northward like a backwards letter "J". The South Jetty is 8,301 feet long and angled down towards the South.

Pursuant to 36 CFR 800.2(a)(1) USACE has determined the APE for the Humboldt Bay Jetty Repair Project would include the entire length, width and depth of the North and South Jetties including a horizontal APE of 150 feet north and south and staging areas on the North and South Spits. The APE is delineated and labeled in Enclosure 2.

Both Jetties are 20 feet wide at the top, 40 feet wide at the base, and 25 feet deep with outside slopes 2 to 1, and inner slopes 5 to 1. The Jetties Heads are raised and covered by 100 ton concrete blocks and surrounded by 4,000 dolos. In all approximately 8,000 dolos were created and carried by crane and spread over the jetty heads. The North and South Spits consist of beach and dune habitat among scattered pine trees, shrubs, and grasses. The staging areas were selected during jetty reconstruction in 1987. The USACE conducted surveys of the staging areas in

1980's and no evidence of cultural resources, was identified (Purcell 1980, Learner 1987). Some of the staging locations currently hold excess or unused stone that will be utilized during future reconstruction.

The project will occur entirely on lands owned or leased by USACE and lands managed by Bureau of Land Management (BLM). The BLM manages the lands on the Spits for State and Federal agencies including the access roads (e.g. U. S. Coast Guard, National Oceanographic and Atmospheric Administration the State of California). The BLM is a consulting party with USACE for this project. USACE is coordinating with BLM to obtain a "Special-Use" permit to access the jetties.

Native American and Agency Consultation

The Corps is consulting with three federally recognized Native American tribes. In May 2019, the USACE District Archaeologist Kathleen Ungvarsky requested a review of the Sacred Lands File from the Native American Heritage Commission (NAHC). The NAHC reported no sacred lands within the study's APE (Enclosure 4). Pursuant to 36 CFR 800.2 USACE requested a list of tribes that have ethnographic, ancestral, and cultural ties to the project area. The NAHC provided a list of tribes and three Wiyot tribes expressed interests and concerns about potential effects to historic properties. The USACE invited their comments and recommendations regarding potential adverse effects to historic properties near the project APE. The most current consultation occurred September 13, 2019 via web conference with three federated Wiyot Tribal Historic Preservation Officers. As a result of that meeting, the APE was refined and reduced to avoid adverse effects to traditional cultural properties. A copy of our correspondence is provided for your information (Enclosure 4).

The BLM is the local land manager on the North and South Spits. USACE invited their participation in consultation and they have provided information about sensitive locations for State and local resources within adjacent to the project APE.

Records Search and Identification of Historic Properties

In May 2019, the California Historical Resources Information System (CHRIS) Records Search was completed by staff archaeologists at the Northwest Information Center (NWIC) located at Sonoma State University (file number 18-2169 Humboldt Harbor Jetties Project). The records search included inventory of ethnographic reports, historic maps, site records, survey reports and GIS data covering a large portion of the Humboldt Bay. We supplemented the CHRIS records search with USACE North Branch (Humboldt Harbor) project reports, local Humboldt Bay and Eureka historical resources from the Humboldt County Public Records located in the Eureka Public Library Humboldt History Room, and Humboldt State University Humboldt Archives in Arcata, California. The local resources provided ethnographic records, maritime historical reports, mining and redwood timber booms, shipping and expansion of railroad transportation.

The records search identified 9 resources within the APE and an additional 17 resources within a 0.5-mile study area. The APE includes a 300-foot study area from the North and South Jetty center line (150 feet in each direction north and south) and the staging areas on the North and

South Spits. The sites within the proposed APE are listed below (Table 1) and are further discussed (Enclosure 5). A copy of this CHRIS search request and results is provided in Enclosure 3.

Table 1. Cultural Resources Identified within the APE

Primary Resource	Trinomial Number	Site Type, Name, Location w/in APE	Human Remains	NRHP Eligibility
P-12-000072	CA-HUM-14	Historic - Native American Site "Loud 14" North Spit. Temporary camp. Covered by sand, possibly submerged or beneath USCG.	Yes – removed or reburied	Eligible. Not relocated
P-12-000073	CA-HUM-15	Historic – Native American Site "Loud 15"	Yes	Not relocated
P-12-000137	CA-HUM-79	Historic - Native American Site "Loud 79"	Yes	Not relocated
P-12-000168	CA-HUM-111	Historic – Native American Site "Loud 111"	Yes	Not located
P-12-000169	CA-HUM-112	Historic – Native American Burial and Settlement "Loud 112" Adjacent to the APE.	Yes removed Noted local lootings.	Eligible
P-12-003441	CA-HUM-1609	Prehistoric - Bay Harbor Shell Midden and temp camp HUM 1620. Covered by sand possibly submerged.	No	If located must be evaluated
P-12-003461	CA-HUM-1620	Historic - Wiyot Cemetery North Jetty	Yes	Eligible. Not relocated
P-12-003476	N/A	Historic - Humboldt Bay Life-Saving Station Adjacent to APE.	No	Listed and eligible 79000477
P-12-003477	N/A	Historic – 1976 Registered Historic Landmark No. 882	No	Eligible

Field-Survey

The survey included characterization of the Humboldt Bay's historic properties. Based on the proposed project, a walk-over survey, with a limited access to sub-surface survey was planned with an intensive survey for re-identification and description of specific historic properties within the APE to refine a developed historic context based on the presence or absence of expected property types, to estimate the distribution of historic properties in an area.

The USACE Archaeologist, Kathleen Ungvarsky, conducted a systematic pedestrian survey on both North and South Spits during low tide. Ethnographic reports by Llewellyn Loud, 1918 and Albert Elsasser 1978, dealt with the ethnogeography and archeology of the Wiyot territory, were studied to gain an overview of Humboldt Bay archeology (Loud, 1918; Elsasser 1978). Prior to going into the field, the archeological base maps and site records maintained at CHRIS were examined to ascertain the locations of previously recorded archeological sites in the project study area.

The field survey involved a strategy of pedestrian transects approximately 5 meters (15 feet) apart from the center of the South Jetty for the width of the South Spit and from the center of the North Jetty for the width of the North Spit. All surfaces were inspected within the APE of 150

feet of the Jetty without modification of the vegetation. Investigation under woody ground cover was closely inspected for evidence of cultural material and potential occupation. No cultural material was identified.

Most of the sites were covered with drifting sand. Loud's notes state in his 1918 visit to Humboldt Bay area that "*aboriginal populations inhabiting the spit were living in little camps in advance of encroaching sand*" (Loud, 1918). Because of this condition archaeological sites would not remain visible on the surface for long once abandoned, and unless buried cultural material was exposed temporarily. In view of Loud's documentation it must be assumed that the site is present beneath the surface. Loud reports site 14 as a seasonal camp used for clam roasting and that camps on the spit were relocated from time. Doubtless many villages have been established in the past along the shore between Samoa and Mad River slough only to be later rendered uninhabitable by encroaching wind and sand. The location of site CA-HUM-14 is outside the APE and within the sandy dunes adjacent to the southern end of the North Jetty. Further consultation with the BLM's Arcata office has located CA-HUM-14 offshore and possibly submerged within the channel thus degrading any potential remnants.

The site of Humboldt 112 is reported to be adjacent to the APE. Loud excavated the site in 1918 and noted looting of burial sites. During subsequent surveys the site could not be re-located. In 1986 the USACE district archaeologist conducted a field survey and concluded no impacts to historic properties. Your office concurred with the findings in 1987. In 2019 USACE performed cultural resources survey for the current repair project the district archaeologist noted scattered shell present near probable historic features although the survey was limited to the surface. No archaeological sites were identified.

Based on our application of the Criteria for Evaluation pursuant to 36 CFR Part 60.4, five historic properties were reported to be in the APE. We were not able to locate four of the reported sites. The sites are thought to be obscured by drifting sand, destroyed or submerged. Additional information is provided in enclosure 5.

The Humboldt Jetties are within the APE. National Register Eligibility was completed for the Jetties in 1977 although the report could not be relocated. Previous correspondence with your office regarding the Jetties is enclosed for your review (Enclosure 3).

The Jetties are a contributing element to the California State Humboldt Bay Historic Landmark District No. 822.

Humboldt Jetties National Register Evaluation

From the first construction in the 1890s through the placement of the dolosse eighty years later, the project has been an engineering experiment in what a local newspaper referred to in 1949 as the "ceaseless, never-ending battle" of Man's "fight against the sea." As such they deserve to be properly recorded. These jetties also qualify for inclusion on that in 1976 they were declared a California Historic Civil Engineering Landmark by the 'San Francisco Branch of the American Society of Civil Engineers. Though modified through destructive natural forces and frequent

repairs, they possess integrity of location, design, materials, workmanship, feeling, setting and association. The joint product of the political will of local businesspeople and engineering ingenuity of the Army Corps of Engineers, these jetties have been instrumental in providing for the economic and social growth of the city of Eureka and of the entire area served by the bay region. This was especially true before the arrival of railroad transportation in 1914. As a harbor of refuge, Humboldt Bay belied its early lack of promise and represents the most significant harbor between San Francisco and the Columbia River. The professional careers of several USACE San Francisco District Army engineers, particularly the pioneer George Mendell, and the business career of John C. Bull, Jr., are intimately associated with the jetties. In form they embody a typical engineering type, made distinctive by adaptation to extreme local conditions.

Pursuant to section 106 of the NHPA the USACE made a good faith effort to identify historic properties under its ownership that may be eligible for inclusion in the NRHP, the USACE sponsored records searches and archeological, historic and structural studies of the Humboldt Jetties (Brandt 1979; Pursell 1981; USACE 1987, 1991). On the basis of these studies, the jetties met the eligibility requirements for the National Register and the evaluation was concurred on by your office in 1981 (Enclosure 4).

Finding of No Adverse Effects

In 1981, Dr. Carroll Purcell found the jetties eligible for listing in the NRHP and recommended their addition to the Historic American Engineering Record (Pursell 1981). The Jetties have been repaired numerous times. The integrity is not completely preserved for both jetties.

Railroad ties and pilings are still present in certain sections of the jetty and in major sections of the concrete cap (Pursell 1981). Many of the significant physical features contributing to the construction of the jetties is severely degraded or in poor condition. The deterioration of the wooden ties and the intense wave activity have resulted in collapse of the concrete leaving deep cavities within the concrete cap.

USACE is proposing no subsurface disturbance. Construction will be confined to the Jetties APE. Staging of material, equipment parking, and or placing materials will not occur at any location outside of the designated staging and construction areas. No dredging is proposed for the jetty repair project.

The proposed undertaking will not "*alter characteristics of the property that may qualify the property for inclusion in the National Register*" of Historic Places (36 CFR 800.4). The USACE has determined the repair project will, therefore, have a finding of no adverse effects to Historic Properties pursuant to 36 CFR 800.4(d)(1).

Management Recommendations and Avoidance Measures

There are isolated cultural resources potentially eligible for the National Register located in or adjacent to the project APE. The following avoidance measures will be followed to avoid any adverse effects to historic properties.

- No work is proposed outside the jetties APE and the predesignated construction and staging areas.
- Interested tribes will be informed by USACE prior to the beginning of construction and tribal monitors will be allowed to observe construction activities when requested.
- Cultural resources including buried or isolated archaeological sites, endangered plants, are non-renewable and sensitive; it is possible that they exist obscured from view by blowing sand, wind and rain, intense waves, or beneath vegetation. There is always the remote possibility that previously unknown cultural resources may be encountered. Therefore, the following precautionary measures are relevant to the proposed work:
 - o If cultural resources are encountered at any time all construction shall be temporarily stopped at that location (including a reasonable distance around the site) and redirected to another area away from the discovery and a qualified cultural resources specialist retained to evaluate the find. This evaluation would follow Federal standards and guidelines (NHPA, Advisory Council on Historic Preservation [ACHP], Secretary of the Interior Guidelines, NRHP, and other applicable legislation). Additional site investigation would be required in addition to consultation with participating agencies. If historic properties were identified, then discovery procedures pursuant to 36 CFR 800.13 would be conducted and mitigation of adverse effects in consultation with participating agencies would be carried out in addition to site specific treatment during construction.

Conclusion

The USACE has determined that historic properties, eligible for listing in the NRHP are identified within the project APE. However, the USACE has determined that historic properties will not be adversely effected by the proposed project.

At this time, we are requesting your comments and concurrence pursuant to 36 CFR § 800.4 and 800.6 for our APE, efforts to identify eligible or listed historic properties, and our determination of no adverse effect towards historic properties. Thank you for your consideration of this project. If you have any questions or comments, please contact Kathleen Ungvarsky, Archaeologist, at (415) 503-6661 or by email kathleen.ungvarsky@usace.army.mil.

Sincerely,

A handwritten signature in cursive script that reads "Tessa Beach".

Tessa Eve Beach, Ph.D.
Chief, Environmental

Enclosures

1. Project Map
2. APE Map
3. Records Search
4. Consultation Correspondence
5. Historic Property Survey and Photographs

Appendix K (Public Comments & Responses)

(Comments/Responses to be included after public comment period)