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BUREAU OF LAND MANAGEMENT

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1792 (OR-120)
EA OR125-08-04

Finding of No Significant Impact (FONSI) for Right-of-way Application: Staging Area for the New Carissa Wreck Removal Project EA OR125-08-04

Introduction:

An Environmental Assessment (EA) has been prepared for the United States Department of Interior, Bureau of Land Management, Coos Bay District (BLM), that presents the potential effects of a temporary right-of-way grant to Titan Maritime LLC (Titan) for development of a shoreline staging area and access to the staging area over BLM roads for the New Carissa Wreck Removal Project. The EA also presents the potential effects of a no action alternative. The proposed shoreline staging area is located approximately 1,000 feet east of the New Carissa wreckage. The land is in the jurisdiction of the Umpqua Field Office. Titan is requesting use of BLM lands from April 2008 through the completion of the New Carissa Wreck Removal Project, which is anticipated to last eight weather-working months (i.e., eight consecutive months assuming no severe weather patterns disrupt project activities for extended periods). All structures and developments associated with the shoreline staging area would be temporary and would be removed after the wreck removal operation. Following the completion of the wreck removal operation, the shoreline staging area and access roads would be restored to preconstruction conditions to the extent practical.

Background:

The Coos Bay District of the BLM is under the direction of the Coos Bay District Resource Management Plan (RMP) and Environmental Impact Statement (EIS) and its Record of Decision (ROD) (BLM, 1995), as supplemented and amended. This EA was prepared to analyze the effects of a temporary right-of-way grant.

Finding of No Significant Impact:

A careful review of the EA, which I herein adopt, indicates that there will not be a significant impact on the quality of the human environment from the implementation of the Proposed Action. I agree with this conclusion and determined that an Environmental Impact Statement (EIS) will not be prepared. This determination is based on consideration of the following factors:

1. The proposed action will occur in localized areas within the boundaries of the Coos Bay District. The proposed action is not national or regional in scope.

2. The proposed action will not significantly affect public health and safety. Public safety will be maintained by restricting public access to the area immediately surrounding the shoreline staging area. A temporary bypass road will be constructed to maintain public access around the staging area. In the interest of public safety, Titan would prevent the public from moving underneath the cable, which will extend from the shoreline staging area to the New Carissa, while the cable car passes overhead.
3. The proposed action will not have an impact on unique characteristics of the geographic area such as energy development, air quality, prime unique farmlands, environmental justice/native American trust resources, wild & scenic rivers/wilderness, or Areas of Critical Environmental Concern.
4. The effects on the quality of the human environment of the proposed action are not highly controversial. Public access to recreational opportunities on the North Spit will be maintained for the duration of the right-of-way grant.
5. The possible effects of the proposed action on the quality of the human environment are not highly uncertain and do not involve unique or unknown risk.
6. The proposed action does not establish a precedent for actions with future significant effects or represent a decision in principle about a future consideration. The right-of-way grant will be for temporary use and the site will be restored to pre-construction conditions to the extent possible.
7. There are no significant cumulative effects identified by this assessment.
8. The proposed action will not adversely affect districts, sites, highways, structures, or objects listed in, or eligible for listing in, the National Register of Historic Places. Nor will it cause a loss or destruction of significant scientific, cultural, or historical resources.
9. The proposed action will fully comply with the Endangered Species Act (ESA) of 1973, as amended.
10. There are no irreversible or irretrievable resource commitments identified by this assessment.
11. The proposed activities will not violate Federal, State, or local laws imposed for the protection of the environment.

A. Dennis Turowski

Dennis Turowski
Umpqua Field Manager
Coos Bay District
Bureau of Land Management

3/11/08
Date

Right-of-way Application: Staging Area for the New Carissa Wreck Removal Project

Environmental Assessment

March 2008

Prepared for:



Bureau of Land Management

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Acronyms and Abbreviations

ACEC	Areas of Critical Environmental Concern
BLM	Bureau of Land Management
Corps	U.S. Army Corps of Engineers
DSL	Department of State Lands
EA	Environmental Assessment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FAA	Federal Aviation Administration
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
ODFW	Oregon Department of Fish and Wildlife
OPRD	Oregon Parks and Recreation Department
RMP	Resource Management Plan
SHPO	Oregon State Historic Preservation Office
SRMA	Special Recreation Management Area
Titan	Titan Maritime LLC
USFWS	U.S. Fish and Wildlife Service



1.0 Introduction

In February 1999, the New Carissa freight ship ran aground on the Oregon Coast near Coos Bay. The bow section was successfully removed from the area in March 1999 and disposed of 250 miles from the coast line. The stern section has since remained, deeply entrenched in sand in the tidal zone of the North Spit of Coos Bay, approximately 3 miles north of the mouth of Coos Bay (Figure 1-1).

Following a 2002 Coos County Court ruling, the State of Oregon took ownership of the New Carissa shipwreck and was given the legal responsibility, and \$22 million, for its removal. The Oregon Department of State Lands (DSL) has overall jurisdiction over the New Carissa because the wreck lies in the beach zone administered by the DSL. Recognizing the safety and legal liability concerns, the State made removal of the New Carissa wreckage a priority.

The State of Oregon contracted with Titan Maritime LLC (Titan) to remove the stern section of the New Carissa from the North Spit tidal zone. Titan prepared a shipwreck removal plan that involves using two barges positioned adjacent to the wreck and an onshore staging area directly east of the wreck. The shoreline staging area would be located on land administered by the U.S. Department of the Interior (USDI), Bureau of Land Management (BLM) in Coos County, Oregon (Township 25 South, Range 14 West, Section 13). BLM requires Titan to apply for temporary right-of-way grant for development of the shoreline staging area and access to the staging area over BLM roads. Titan's use of the shoreline staging area would require activities on the beach, which is under the jurisdiction of Oregon Parks and Recreation Department (OPRD). Activities on OPRD lands would be permitted with that agency.

This Environmental Assessment (EA) has been prepared for BLM to meet the requirements of the National Environmental Policy Act (NEPA; 42 USC §§ 4321 *et seq.*) and applicable NEPA regulations. This EA was prepared for the action involving temporary right-of-way grant on BLM lands and does not address the in-water activities related to the wreck removal. The wreck removal activities that would occur in the Pacific Ocean are in an area under the jurisdiction of the U.S. Army Corps of Engineers (Corps) and DSL. The Corps and DSL have required Titan to completely assess the potential effects of in-water work in accordance with Section 404 of the Clean Water Act through the Joint Permit Application process. As part of that process, Titan prepared Biological Assessments for the Corps to address impacts to threatened and endangered species under the jurisdiction of the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). Information from the Joint Permit Application process, including the Biological Assessments, is included in this EA by reference.



1.1 Proposed Action

Titan proposes to provide shoreline access to the New Carissa wreck removal operation by establishing a shoreline staging area to be located approximately 1,000 feet east of the wreckage on BLM-administered land, which in this case, is comprised of sand dunes and beach grass typical of the coastline for miles to the north and south. The shoreline staging area would include a construction transporter, similar to an aerial tramway, which would be used to provide regular safe access between the shore and the wreck removal site for personnel, equipment, and supplies. Personnel would be transported to and from the site each day for 12-hour shifts using the construction transporter. Land access to the staging area would require use of BLM roads that traverse the North Spit.

To develop and use the shoreline staging area, Titan is applying for temporary right-of-way grant on BLM lands. Titan is requesting use of these lands from April 2008 through the completion of the New Carissa wreck removal project, which is anticipated to last eight weather-working months (i.e., eight consecutive months assuming no severe weather patterns disrupt project activities for extended periods). All structures and developments associated with the shoreline staging area would be temporary and would be removed after the wreck removal operation. Following the completion of the wreck removal operation, the shoreline staging area and access roads would be restored to preconstruction conditions to the extent practical. A complete description of the proposed action is provided in Section 2.2.

1.2 Purpose and Need for Proposed Action

The shoreline staging area and construction transporter is a necessary component of the Titan wreck removal plan. Given the location of the wreck in the subtidal zone, which is subject to intense wave action, regular and safe access to and from the wreck removal barges could occur only by air. Titan devised a construction transporter to transport personnel and supplies to the wreck removal barges at regular intervals. Although helicopters could be used, they are not reliable under certain weather conditions (e.g., high winds and fog) and are cost prohibitive for the duration of the project.

Use of the construction transporter is also integral to Titan's Site Safety Plan (Appendix A) because it would be used for emergency evacuations when weather prevents helicopter access.

Titan requires restricted access to the staging area and its immediate surroundings for the safety of Titan employees, project equipment, and the general public. The restricted access area would extend 50 to 100 feet around the staging area and would include the segment of Foredune Road adjacent to the staging area. Only authorized persons and vehicles would be allowed in the restricted area. The need for this exclusion zone is to minimize the risk of unauthorized persons interfering with operations and equipment. This access restriction would be in place from initiation to demobilization of the staging area. In order to provide a continuous north-south travel corridor for pedestrians, equestrians, and vehicles on Foredune Road during this period, Titan would construct a temporary bypass road east of the shoreline staging area. The bypass road would be



necessary to ensure continued safe public access to North Spit recreation opportunities for the duration of the project. Rerouting vehicles around the staging area via the beach would restrict mobility during high tides.

1.3 Public Involvement

BLM posted a legal notice in *The World*, a local newspaper with readership in the proposed project area, on November 27, 2007, regarding the proposed project and development of this EA. Additionally, approximately 150 letters describing the proposal and inviting public comment were sent to the public on November 21, 2007. A two-week comment period was provided for initial public input.

The project description in those public notices included closure of South Dike Road and Foredune Road south to the FAA tower. Based on public input, the proposed action was revised to allow continued public use of South Dike Road and Foredune Road, with a bypass road around the shoreline staging area.

In response to the request for comments, BLM received 28 e-mails and 7 letters. Following is a summary of the comments received concerning Titan's proposed temporary acquisition of BLM right-of-way:

Comment	Response to Comment
The New Carissa wreck should remain in place: it is a tourist attraction; removal of the wreck is a waste of money.	The decision to remove the wreck is not part of this assessment.
The EA should consider the environmental impacts of removing the New Carissa wreck.	This EA was prepared for the action involving temporary right-of-way acquisition of BLM lands. The wreck removal activities that would occur in the Pacific Ocean are in an area under the jurisdiction of the U.S. Army Corps of Engineers and the DSL. The potential effects of those activities have been investigated through the Joint Permit Application process in accordance with Section 404 of the Clean Water Act.
Closure of the sand roads is not necessary for emergency evacuation. The sand roads are large enough to accommodate two-way traffic and do not warrant closure. Safety is not a viable reason for closing the sand roads.	Helicopters would be available for emergency evacuation from the wreck site; however, the sand roads would be the principle evacuation route in poor weather conditions. Many sections of the sand roads are one lane; to expand the road width to two lanes would increase project impacts. The need for closing a portion of Foredune Road is discussed in Section 1.2.
Severe weather conditions could inhibit wreck removal activities and extend the operation beyond the anticipated time line, requiring use of the sand roads and construction staging area for a longer than expected period.	Titan's application for right-of-way access estimates the project duration to be approximately eight weather-working months. Severe weather conditions for extended periods could lengthen the duration of the project.
Any and all improvements to the South Dike and Foredune roads should be removed following project completion.	Titan does not plan to make improvements to the roads. The road will be maintained to reduce ruts created by heavy vehicles. This is discussed in Section 2.2.2.



Comment	Response to Comment
Vehicular access to the southern portion of the North Spit is needed to conduct monitoring of snowy plover (bird species listed as "threatened" under the Endangered Species Act).	The proposed action was revised to allow continued public use of South Dike Road and Foredune Road, with a bypass route around the shoreline staging area. Authorized federal, state, and local agency vehicles would be allowed to use Foredune Road in lieu of the bypass if necessary. This is discussed in Section 2.2.2.
The wreck removal could affect marine life and the dune environment. The EA should address effects of the proposed action on wildlife.	Section 3.4.2 describes the potential effects of the proposed action on wildlife species. The environmental effects of the removal of the New Carissa wreck are addressed in a Joint Permit Application from the U.S. Army Corps of Engineers and DSL for a Section 404 Permit in accordance with the Clean Water Act. As part of that application, Titan prepared Biological Assessments on behalf of the Corps to address impacts to threatened and endangered species under the jurisdiction of the National Marine Fisheries Service and the U.S. Fish and Wildlife Service.
The proposed action would disrupt snowy plover habitat, including nesting and foraging habitat.	The project applicant, Titan, is consulting with the U.S. Fish and Wildlife Service about implementing measures to protect snowy plover habitat during the project development. This is discussed in Section 3.4.2.
The project would restrict the public's right to access the beach. Closure of sand roads to horse or foot access would interfere with recreational use of the North Spit.	The proposed action was revised to allow continued public use of South Dike Road and Foredune Road, with a bypass route around the shoreline staging area. This is discussed in Section 3.6.2.
The sand roads should be open to the public on weekends. Trans Pacific Lane should remain open and bay access should be available during the removal activities.	The proposed action was revised to allow continued public use of South Dike Road and Foredune Road, with a bypass route around the shoreline staging area. Access to the North Spit via Trans Pacific Lane and Bayside Road would not be affected by the proposed action. This is discussed in Section 3.6.2.
The combined effects of restricted access during the first attempt to remove the New Carissa and for the protection of snowy plover habitat have been detrimental to recreational use of the North Spit.	The effects of other actions on recreation are considered as part of the cumulative impact assessment, which is discussed in Section 3.6.2.
Restricted access to the North Spit would reduce the number of visitors, which would hurt the local economy.	With the revision to the proposed action, access to the North Spit would not be restricted. It is uncertain how the proposed action would affect the local economy. This is discussed in Section 3.6.2.
The proposed action interferes with BLM's ability to implement the BLM recreation plan.	The proposed action involves temporary use of two roads and a quarter-acre site in the North Spit Special Recreation Management Area. Continued public access to the North Spit would be possible throughout the wreck removal operation. This is discussed in Section 3.6.2.



1.4 Resources Determined To Not Be Affected

Analysis of the No Action Alternative and the Proposed Action Alternative has shown that the following elements of the human environment would not be affected and as such are not discussed in this EA:

- Areas of Critical Environmental Concern (ACEC)
- Prime or unique farmlands
- Floodplains
- Wild and scenic rivers
- Wilderness values

The proposed areas of activity are not known to be used by, or disproportionately used by, Native Americans and minority or low-income populations for specific cultural activities, or at greater rates than the general population. This includes relative geographic location and cultural, religious, employment, subsistence, or recreational activities that may bring them to the proposed areas. Also, no disproportionately high or adverse human health or environmental effects would occur to Native Americans, and minority or low-income populations as a result of the proposed action.

1.5 Conformance with Land Use Plans

This EA is tiered to and in conformance with the *Coos Bay District Resource Management Plan/Final Environmental Impact Statement* (USDI BLM, 1994) and its *Record of Decision* (USDI BLM, 1995a) and the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl (Northwest Forest Plan)* (USDA/USDI, 1994a) and its *Record of Decision* (USDA/USDI, 1994b) as supplemented and amended by:

- *Management of Port-Orford-cedar in Southwest Oregon Final Supplemental Environmental Impact Statement* (USDA/USDI, 2004a) and its *Record of Decision* (USDA/USDI, 2004b).
- *The Final Supplement to The 2004 Environmental Impact Statement to Remove or Modify The Survey and Manage Mitigation Measure Standards and Guidelines* (USDA/USDI, 2007a) and its *Record of Decision* (USDA/USDI, 2007b).

This EA is also tiered to and in conformance with the *Coos Bay Integrated Noxious Weed Program* (USDI BLM, 1997).

The Resource Management Plan (RMP) designated the entire North Spit lands managed by BLM as a Special Recreation Management Area (SRMA) (USDI BLM, 1995b). Under the SRMA designation, the BLM provides access for ocean, coastal, and bay-front-dependent recreation activities while protecting natural, cultural, and scenic



resources. The project area is also designated as an ACEC. The action would be consistent with the relevant and important values for which the ACEC was established.

One of the stated objectives under Rights-of-Way in the RMP (USDI BLM, 1995b pg. 65) is to continue to make BLM-administered lands available for needed rights-of-way where consistent with local comprehensive plans, Oregon statewide planning goals and rules, and the exclusion and avoidance areas identified in the RMP.



2.0 Alternatives, Including the Proposed Action

2.1 No Action Alternative

The No Action Alternative would result in no change to existing land use and management of the North Spit of Coos Bay. There would be no temporary acquisition of right-of-way from BLM for construction of a shoreline staging area. Titan would not participate in the removal of the New Carissa shipwreck because it could not ensure safe and efficient transport of its personnel to and from the wreck removal barges. There is no foreseeable shipwreck removal action under the No Action Alternative. The New Carissa would continue to present a safety and liability concern for the State of Oregon.

2.2 Proposed Action Alternative

The proposed action is for BLM to grant temporary right-of-way on BLM-administered lands on the North Spit of Coos Bay to Titan. The temporary right-of-way on these lands is to provide access to and construct a temporary shoreline staging area to support the New Carissa shipwreck removal, and to provide continued public access to North Spit recreation opportunities throughout the project.

2.2.1 Shoreline Staging Area

The shoreline staging area would occupy a 50-foot by 200-foot area (0.23 acres) on land directly east of the shipwreck, near the crest of the foredune (i.e., the dune fronting the beach) (see Figure 2-1). The staging area would include a construction transporter, two office containers, several storage containers, a crane, parking area, and heavy machinery (including, but not limited to, cranes, bulldozers, and excavators). The construction transporter would be used to transfer crew and supplies to the wreck removal site. No scrapped materials from the wreck would be moved to the staging area. All structures and developments associated with this staging area would be temporary and would be removed after the wreck removal operation.

The proposed construction transporter would be similar to an aerial tramway that would connect the shoreline staging area to the wreck removal barges. The transporter would consist of a tower not to exceed a height of 30 feet on a platform base within the staging area, a single cable car and a heavy wire cable connecting to a tower on one of the barges alongside the wreck (Figure 2-2). The platform base would be approximately 31 feet by 17 feet and would be supported on four legs buried in the dune. The position of the heavy wire cable would be maintained with two deadman anchors buried approximately 150 feet (and no more than 200 feet) east of the staging area. The design and engineering of the construction transporter would be completed and stamped by a professional engineer with expertise in marine environments. The design plans would be provided to BLM prior to issuance of the right-of-way grant.

The construction of the staging area and associated facilities would occur in April 2008. It would require the use of an excavator to level the area and bury the deadman anchors



and a crane to install the construction transporter towers and steel support structures. The leveled area would be at the greatest height achievable near the crest of the foredune using sand at the site. Approximately 40 cubic yards of sand would be excavated to place the two 5-ton deadman anchors at a depth of 15 to 20 feet. The deadman anchors would be located entirely outside of nearby wetlands and a silt fence would be placed around the wetlands to prevent inadvertent fill or sedimentation. The staging area would be covered with matting or a mesh material to minimize disturbance to the leveled area. The excavator and crane would remain within the staging area until the removal of the wreckage is complete, then they would be used to dismantle the structures and remove the deadman anchors.

Wreck removal activities would occur 24 hours a day, which would require lighting the staging area during nighttime hours. Two diesel-driven light stands would illuminate the staging area; lighting would be focused on the immediate work area.

In the interest of public safety, Titan would prevent vehicles, pedestrians, and equestrians from moving underneath the cable while the cable car passes overhead.

Mechanical equipment on site would use diesel fuel, hydraulic oil, and lube oil. There would be no storage of fuel in the staging area; diesel fuel would be brought in as needed to refuel the equipment. Equipment would be stored in integrated or portable containment basins made of impermeable material. Refueling would occur within the containment basin. In the unlikely event of a fuel or oil spill, Titan would immediately notify the Oregon Department of Environmental Quality and remove any contaminated sand with shovels into a 55-gallon drum, which would be disposed of in accordance with state and local regulations. Spill response equipment would be stored on site.

The duration of the wreck removal operation, including mobilization and demobilization, is estimated to last approximately eight weather-working months. The leveled area would be restored to original conditions to the extent possible. Sand would be contoured to match the elevation and shape of the adjacent foredunes and the site would be seeded with an agency approved seed mix. BLM would review and approve the site restoration process. Titan would conform to terms and conditions enacted by BLM as part of the right-of-way application.

2.2.2 Restricted Access Area and Bypass Road

Titan would maintain a restricted access area within 50 to 100 feet of the shoreline staging area (Figure 2-1). This access restriction would be in place from initiation to demobilization of the staging area. The purpose of the restricted access area is to ensure the safety of Titan employees, project equipment, and the general public. Only authorized persons and vehicles would be allowed in the restricted access area. The area would be fenced and Titan would have a security guard at the site 24 hours a day to call attention to the restricted access area and issue warnings to the general public as appropriate. The security guard would be instructed to contact BLM, Oregon Parks and Recreation Department (OPRD), or local police in the event of a problem. Titan would coordinate with BLM, DSL, and OPRD to address any chronic security problems.



The restricted access area would preclude public use of Foredune Road adjacent to the shoreline staging area. In order to provide a continuous north-south travel corridor for pedestrians, equestrians, and vehicles on Foredune Road during the project, Titan would construct a temporary bypass road east of the shoreline staging area (Figure 2-1). The proposed location of the bypass road was determined by BLM. The bypass road would be approximately 400 feet long and 20 feet wide. Titan would construct the bypass road and provide signs directing public use along the bypass road. The cable connected to the deadman anchors would not interfere with traffic on the bypass road. Authorized federal, state, and local government vehicles may continue to use Foredune Road instead of the bypass road, if necessary.

While South Dike Road and Foredune Road, including the bypass road, would remain open to the public for the duration of the project, Titan would reserve the right to temporarily close these roads for short periods to transport construction materials such as heavy machinery, deadman anchors, etc. or for medical emergencies. Titan would work with federal, state, and local officials to ensure these closures provide for the safety of the general public and limit access for the shortest time possible. Titan may regrade areas of South Dike and Foredune roads to accommodate access of equipment to the staging area. The roads would not be widened.

Titan would work closely with BLM, OPRD, and local law enforcement authorities to inform the general public of the operation. Titan would print and post signs that are acceptable to local agencies along the major access routes announcing the proposed restrictions, warning the public of the dangers associated with the operation, and identifying the restricted access area.

2.2.3 Other Project Features

Titan will take the following measures to minimize impacts to resources potentially affected by the proposed action:

- Hazardous materials within the staging area will be stored in proper containment areas to prevent contamination of water resources.
- Refueling activities at the staging area will occur within a portable containment basin to prevent accidental releases of fuel to the environment.
- Titan will ensure that, before entering BLM managed lands, all heavy construction equipment is clear of soil, debris, and other substances that could contain weed seeds or vegetative fragments to minimize the potential for introducing non-native species.
- Titan will pile and burn removed vegetation (primarily European beach grass and scotch broom).
- Following completion of the wreck removal project, the shoreline staging area, bypass road, and access roads will be regraded, to the extent possible, to



pre-construction conditions. Areas where vegetation was removed will be seeded with an agency approved seed mix.

- For the protection of snowy plover:
 - In the unlikely event of spill of hazardous materials, Titan will contact DSL and begin cleanup procedures developed in the OSRP. Titan employees will not attempt to capture oiled plovers for rehabilitation unless accompanied by a qualified biologist from USFWS or other state or federal agency.
 - Titan employees will be educated about the sensitivity of ESA-listed species in the vicinity.
 - Project related vehicles will be driven at 10 miles per hour or less when near the staging area.
 - All project personnel will stay at least 200 feet from nest enclosures and marked habitat unless accompanied by a qualified biologist. Habitat markers include ropes, wooden posts, carsonite posts, and signs.
 - All trash and food scraps brought into the action area or collected by personnel associated with the wreck removal will be collected daily and placed in an appropriate receptacle on shore or offsite.
 - Feeding wildlife, including gulls and crows, will be prohibited.
 - Vehicles will not enter mapped plover nesting areas unless accompanied by a plover biologist.
 - Aircraft should maintain a minimum elevation of 300 feet when flying over mapped plover wintering areas.
 - Aircraft should be flown at a minimum elevation of 500 feet over mapped plover nesting areas.
 - Aircraft should be flown over the water to the extent possible.

2.3 Alternatives Considered but Eliminated From Further Analysis

Titan considered an alternative location for the shoreline staging area south of the Proposed Action Alternative. This site was eliminated from further consideration because it lies closer to snowy plover habitat and farther from the shipwreck.

Titan considered closing South Dike Road and Foredune Road to unauthorized vehicles in order to ensure unimpeded access for project activities, and a safe and reliable



evacuation route for project personnel. Based on public comment objecting to restricted access to the North Spit, Titan revised the proposed action to allow continued public use of South Dike Road and Foredune Road.



3.0 Affected Environment and Environmental Consequences

3.1 General Setting

The North Spit of Coos Bay is a 6-mile-long, narrow sand spit that divides Coos Bay estuary from the Pacific Ocean. The sandy projection of land contains a varied landscape of sand dunes, vegetated sand hills, wetlands, and marshes. Most of the North Spit is federal land administered by the BLM with the southern tip administered by the U.S. Army Corps of Engineers (Corps). The ocean shoreline is the property of the State of Oregon and is administered by the Department of State Lands (DSL) and Oregon Parks and Recreation (OPRD). A section of the bay coast line is used by the Port of Coos Bay for industrial and commercial port activities.

There is a system of four-wheel drive sand roads throughout the North Spit. The mouth of Coos Bay is stabilized by jetties to the north and south. The north jetty forms the southern end of the North Spit

For purposes of this document, the **project site** is the area that would be included in the temporary right-of-way acquisition by Titan for the shoreline staging area and access associated with the New Carissa Wreck Removal Project. The **study area** refers to the area that could be affected by the project and differs by resource.

3.2 Geology and Soils

3.2.1 Affected Environment

The study area for geology and soils is the North Spit of Coos Bay. Sand spits like the North Spit are dynamic land forms and subject to continual change from wind and ocean forces. Unlike other sand spits, however, the North Spit has become a relatively stable environment as the result of the introduction of non-native European beach grass in the early part of the 20th Century to control sand movement along harbors and roads (USDA, 1994a).

The Pacific Ocean defines the western shore of the North Spit and this beach environment is subject to tidal forces, wave action and wind. The beach transitions to the steep, vegetated sand dunes that are formed by wind and wave action, particularly during large storm events. Non-native vegetation stabilized the dunes, creating a large linear foredune along the beach. Over the decades, the foredune has grown tall enough to essentially cut off the supply of wind-blown sand necessary for the replenishment of the inland open sand dunes. Prior to foredune formation, native vegetation and natural debris stopped enough sand to create a low beach ridge, but much of the sand was able to move past the ridge and enter the dune-building activity behind the shore (Lund, 1973). Vegetated sand hills and wetlands lie behind the foredune and are protected from much of



the wave and wind action along the beach. These areas transition eastward to the marsh and estuarine environment of Coos Bay.

According to the U.S. Department of Agriculture Natural Resources Conservation Service (USDA NRCS, 2008), the project site is located in an area represented by several soil types. South Dike Road traverses Waldport - Heceta fine sands of 0 to 30 percent slope and Heceta fine sand. Foredune Road is located primarily in the Waldport - Dune land complex with 12 to 30 percent slopes. The beach is identified as a sand and gravelly beach sand unit. The vegetated sand hills and wetlands in the project area are in Heceta fine sand and Heceta - Waldport fine sand soil units.

The North Spit is in a seismically active area with numerous faults in the underlying bedrock and the Cascadia subduction zone offshore. Large earthquakes in the Cascadia subduction zone are part of the geologic record and their recurrence is predicted in 300- to 600-year intervals (Cascadia Region Earthquake Workgroup, 2007). These earthquake events could create tsunamis that would likely alter the dune forms and other features of the North Spit landscape.

3.2.2 Environmental Consequences

3.2.2.1 No Action Alternative

The No Action Alternative would result in no change to the existing conditions of geological resources and soils in the study area. There would be no direct, indirect, or cumulative effects on geology or soils in the study area.

3.2.2.2 Proposed Action Alternative

Direct and Indirect Impacts

The proposed action would require earthmoving activities on the project site during the construction phase. No new earth materials would be brought into the site. All leveling and grading would be accomplished using the sand available on-site. Following completion of the wreck removal operation, the staging area would be restored to preconstruction conditions to the extent possible. Sand would be contoured to match the elevation and shape of the adjacent foredunes and the site would be seeded with an agency approved seed mix. The bypass road would be contoured to its original slope, to the extent possible, and seeded with an agency approved seed mix.

The proposed action would have no long-term direct effect and no indirect effect on geology or soils in the study area.

Cumulative Impacts

The proposed action would not contribute to a cumulative effect on the geology or soils in the study area.



3.3 Water Resources

The study area for water resources is the project site and immediately adjacent lands and water bodies. The Pacific Ocean and Coos Bay are not included in this analysis because those water bodies would not be affected by the temporary shoreline staging area. Titan is pursuing a joint permit with the Corps and DSL to meet the requirements of Section 404 of the Clean Water Act for wreck removal activities in the Pacific Ocean.

3.3.1 Affected Environment

3.3.1.1 Surface Waters and Wetlands

Wetlands on the North Spit are referred to as deflation plain wetlands because they are created as a direct result of foredune establishment: the foredune blocks the supply of wind-blown sand from the beach environment to the inland area and onshore winds strip away the sand east of the foredune, eroding the surface down to the water table. The wetlands near the staging area are considered jurisdiction wetlands by the Corps. This process can result in the formation of interdunal marshes, which are sustained almost entirely by groundwater, but are prone to filling by windblown sand and typically succeed to shrub swamp or upland habitat (Kjelstrom and Williams, 2000).

There are no streams, ponds, lakes, or wetlands on the project site. An abandoned effluent lagoon, which was operational in the 1970s, is located north of South Dike Road. Two deflation plain wetlands occur just east of the proposed site of the shoreline staging area. Observations made by project personnel visiting the site on October 24, 2007, indicate these wetlands are approximately 25 feet downslope from the proposed location of the two deadman anchors (Figure 3-1). These wetlands are in a low lying area where ponding from high groundwater levels is common in winter months and during summer, water levels are within 12 to 18 inches of the surface. The wetlands are characterized by a rush meadow vegetative community that lacks tree and shrub species (*Carex sp.*, *Juncus sp.*, *Potentilla sp.*). These wetlands provide valuable year-round wildlife habitat and water storage areas during the summer months.

3.3.1.2 Groundwater

The study area is on the southern end of a 19.5-square-mile dune and marine sand aquifer that extends from the area south of the abandoned effluent lagoon north to Tenmile Creek. The Oregon Water Resources Department Water Rights Information System shows no entities holding groundwater rights in the study area (Oregon Water Resources Department, 2007).

3.3.2 Environmental Consequences

3.3.2.1 No Action Alternative

The No Action Alternative would result in no change to the existing conditions of water resources in the study area.



3.3.2.2 Proposed Action Alternative

Direct and Indirect Impacts

The proposed locations for the shoreline staging area, bypass road, and deadman anchors are designed to avoid wetlands; therefore, there are no anticipated direct impacts to wetlands adjacent to the project area from the development of the staging area or placement of deadman anchors.

The removal of dune vegetation (European beach grass) and grading to establish the staging area may increase delivery of wind-blown sand to adjacent wetlands. This indirect impact would be limited because disturbed areas within the staging area would be covered with matting during the wreck removal operation. Following completion of the wreck removal operation, the staging area would be restored to preconstruction conditions to the extent possible. Sand would be contoured to match the elevation and shape of the adjacent foredunes and the site would be seeded with an agency approved seed mix. Revegetation of the foredune would likely occur in subsequent growing seasons and prevent sand from blowing into the wetlands.

Removal of vegetation for construction of the bypass road also could increase delivery of wind-blown sand to adjacent wetlands; however, the bypass road is downslope of the dune and protected from onshore winds. The amount of sand transported to the wetlands from the new road would not alter their form or function. Following completion of the wreck removal operation, the bypass road would be contoured to its original slope, to the extent possible, and seeded with an agency approved seed mix.

Refueling activities at the staging area would occur within a portable containment basin made of impermeable material to prevent releases of fuel to the environment. Accidental releases of fuel or spills outside of the containment area (e.g., machinery leaks, vehicular accidents) related to the project would be cleaned up immediately by Titan personnel and disposed of in accordance with state and local regulations. Titan personnel would check for leaks on all machinery prior to use. Titan would maintain spill response equipment on site.

Cumulative Impacts

The short-term use of the project site under the proposed action would not significantly affect wetlands or other water bodies and would not contribute to a cumulative impact to water resources in the study area. The potential effects of the in-water work related to the wreck removal activities on water resources are addressed in the Joint Permit Application.

3.4 Fish and Wildlife

The study area for fish and wildlife is the project site and immediately adjacent lands and water bodies. Several species in the study area are listed as threatened or endangered under the Endangered Species Act (ESA). Titan, on behalf of the Corps, prepared Biological Assessments of ESA-listed species for the National Marine Fisheries Service



(NMFS) and U.S. Fish and Wildlife Service (USFWS) as part of the Joint Permit Application to the Corps and DSL for in-water work¹ and in accordance with Section 7 of the ESA. The Biological Assessment for NMFS addresses marine species, including salmon species, sturgeon, ground fish, and marine mammals. These species require aquatic and terrestrial habitats that are not present within the project site. The Biological Assessment for USFWS addresses potential impacts to non-marine species, some of which could occur on the project site. The Biological Assessments are provided in Appendix B.

3.4.1 Affected Environment

3.4.1.1 Aquatic Species

There are no fish-bearing water bodies, federally-listed aquatic species, or Essential Fish Habitat (EFH) on the project site. Table 3-1 lists the aquatic Special Status Species that are found surrounding Coos Bay District lands; none of these species occur on the project site.

Table 3-1. Aquatic Special Status Species that may occur on the North Spit, Coos Bay District.

Species Name	Status	Range	Habitat
Chum Salmon <i>Onchorhynchus keta</i>	BS	Coastal rivers	Estuaries and large rivers
Coho Salmon (Oregon Coastal) <i>Onchorhynchus kisutch</i>	FT	Oregon coastal streams north of Cape Blanco	Coastal streams with stable water supply, abundant woody debris, and high quality riparian habitat
Coho Salmon (Southern Oregon/Northern California) <i>Onchorhynchus kisutch</i>	FT	Coastal rivers south of Cape Blanco, north of Cape Mendocino	Coastal streams with stable water supply, abundant woody debris, and high quality riparian habitat
Fall Chinook salmon (Southern Oregon/Northern California) <i>Onchorhynchus tshawytscha</i>	BS	Coastal rivers south of Cape Blanco, north of Cape Mendocino	Large coastal rivers
Spring Chinook salmon (Southern Oregon/Northern California) <i>Onchorhynchus tshawytscha</i>	BA	Coastal rivers south of Cape Blanco, north of Cape Mendocino	Large coastal rivers
Steelhead winter and summer run (Klamath Mountains Province) <i>Onchorhynchus mykiss</i>	BA	Coastal rivers south of Cape Blanco, north of Klamath, CA	Coastal rivers—mainly Rogue River and Klamath River
Steelhead winter and summer run (Oregon Coastal) <i>Onchorhynchus mykiss</i>	FC	Oregon coastal rivers north of Cape Blanco	Coastal streams with stable water supply, abundant woody debris, and high quality riparian habitat

¹ Titan is pursuing a joint permit with the Corps and DSL to meet the requirements of Section 404 of the Clean Water Act for wreck removal activities in the Pacific Ocean.



Species Name	Status	Range	Habitat
Millicoma dace <i>Rhinichthys cataractae</i>	BS	Coos and Millicoma rivers	Swift water habitat with cobble and boulder substrate in freshwater stream
Rotund Lanx (snail) <i>Lanx subrotundata</i>	BS	Throughout District	Aquatic, large river systems
Robust walker (snail) <i>Pomatiopsis binneyi</i>	BS	Throughout District	Damp areas along stream sides under leaf litter and other detritus
Pacific walker (snail) <i>Pomatiopsis californica</i>	BS	Throughout District	Damp areas along stream sides under leaf litter and other detritus

BS = bureau sensitive, BA = bureau assessment, FT = federally threatened, and FC = federal candidate.

3.4.1.2 Birds

Shore and predatory birds are present within the project study area. These include but are not limited to brown pelican (*Pelecanus occidentalis*), red tailed hawk (*Buteo jamaicensis*), American bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrines*), osprey (*Pandion haliaetus*), crows (*Corvus* spp.), and various species of gull (*Larus* spp.). The mixture of shorebirds varies with the season and includes whimbrel (*Numenius phaeopus*), sanderling (*Calidris alba*), western snowy plover (*Charadrius alexandrinus nivosus*), dunlin (*Calidris alpina*), western sandpiper (*Calidris mauri*), and others. Birds use the diverse habitat of the North Spit for foraging, nesting, and roosting. There is a great blue heron (*Ardea herodias*) rookery at the southern end of the North Spit on U.S. Army Corps of Engineers property. There is also great blue heron rookery on the bay side of the North Spit on BLM-administered lands; however, this site has not been occupied in recent years. The North Spit also provides habitat for migrating birds. This includes a large group of bird species that migrate from South America into the Pacific Northwest in the spring. These neo-tropical migrants are a diverse assemblage of bird species with varied habitat needs.

Several bird species found on the North Spit are listed as threatened or endangered under the ESA. These are: western snowy plover (threatened), California brown pelican (endangered), and marbled murrelet (threatened). These birds and their habitat within the study area are described in detail in the USFWS Biological Assessment (see Appendix B); a summary description follows.

Western Snowy Plover

The western snowy plover population on the North Spit represents nearly 30 percent of the total Oregon breeding population. The nearest known nesting site observed during the 1999 to 2007 nesting seasons was located in the area between the high tide line and the foredune approximately 1.5 miles south of the project site (USFWS, 2007). Expected presence in the study area is predominately for foraging and migrating purposes. Nesting is not expected and has not been previously recorded in the study area. Foraging along the wrack line (i.e., the highest point reached by the tide) and within the intertidal area is expected to occur in the study area. Migration of plovers between nesting sites and



foraging grounds is also expected in the study area. Southern portions of the North Spit are designated as critical habitat for snowy plover (Figure 3-2).



California Brown Pelican

Surveys of the surrounding lands suggest the high likelihood of brown pelican presence in the study area. Brown pelicans breed in California and disperse northward to Oregon from breeding grounds after nesting, and then migrate south to winter. Habitat for nightly and daily roosting occurs south of the study area along the north jetty where they use the large riprap as roosting sites. This habitat is located approximately 3 miles south of the project site. Brown pelican are anticipated to fly through the study area searching for productive fishing grounds along the coastline. Currently, no critical habitat has been designated by the USFWS for brown pelicans.

Marbled Murrelet

The study area consists predominately of dune, foredune, deflation plains, and beach habitats that lack overall tree structure to support marbled murrelet nesting. Marbled murrelet could fly over the study area enroute to the ocean for foraging. Marbled murrelets typically forage along rocky coastal areas, which are not present in the study area. There is no designated critical habitat for marbled murrelet in the study area.

Surveys of terrestrial communities during the site visit on October 24, 2007, found no marbled murrelet habitat in the study area and no marbled murrelets were observed during the survey.

The BLM identifies 10 bird Special Status Species that may occur in the study area. These species are listed in Table 3-2.

Table 3-2. Bird Special Status Species that may occur on the North Spit, Coos Bay District.

Species Name	BLM Status	Range	Habitat
Arctic peregrine falcon <i>Falco peregrinus tundrius</i>	BS	Occasional winter migrant	Cliffs, may perch in trees
American peregrine falcon <i>Falco peregrinus anatum</i>	BS	North Spit during shorebird migration	Cliffs, may perch in trees
Aleutian cackling goose <i>Branta Canadensis</i> <i>Leucopareia</i>	BS	Coastal Oregon, occasionally stops at North Spit	Coastal grasslands
Dusky Canada goose <i>Branta canadensis occidentalis</i>	BS	Throughout District	Open grasslands, wet meadows
Bald eagle <i>Haliaeetus leucocephalus</i>	FC	Uncommon on North Spit	Large trees for nesting/perching, near water
Oregon vesper sparrow <i>Pooecetes gramineus affinis</i>	BS	Rare migrant; winter migrant	Grasslands
Streaked horned lark <i>Eremophila alpestris strigata</i>	FC	Rare migrant; winter migrant	Coastal dunes, open ground with short grass or scattered bushes
Upland sandpiper <i>Bartramia longicauda</i>	BS	Vagrant, very rare	Coast; open grassland



Species Name	BLM Status	Range	Habitat
Western snowy plover <i>Charadrius alexandrinus</i> <i>Nivosus</i>	FT	Coastal OR, largest population in OR is on North Spit	Beaches and inland areas of open sand
White tailed kite <i>Elanus leucurus</i>	BA	Fairly common wintering species on North Spit	Pastures, open grasslands; typically low elevations

BS = bureau sensitive, BA = bureau assessment, FT = federally threatened, and FC = federal candidate.

3.4.1.3 Marine Mammals

Marine mammals primarily live in ocean waters, bays, and estuaries, but some species will forage inland in coastal streams and rivers. Seals and sea lions require both aquatic and terrestrial habitats, and regularly use land for haul-outs and breeding. Haul-outs and rookeries are typically located in isolated beaches, reefs, or rock island. Sightings of seals or sea lions near the New Carissa or adjacent beach are rare (ODFW, 2007). These animals are not anticipated to occur on the project site.

3.4.2 Environmental Consequences

3.4.2.1 No Action Alternative

The No Action Alternative would result in no change to the existing conditions of fish and wildlife resources in the study area.

3.4.2.2 Proposed Action Alternative

Direct and Indirect Impacts

The proposed action would not affect fish species or marine mammals because no fish-bearing water bodies or marine mammal habitat are located on the project site (i.e., the area that would be included in the temporary right-of-way grant from BLM by Titan). The potential impacts to fish and marine mammal species resulting from the in-water work associated with the shipwreck removal is described in the NMFS Biological Assessment prepared on behalf of the Corps (Appendix B). Following its review of the Biological Assessment, NMFS will issue a Biological Opinion enacting terms and conditions on in-water work activities to protect ESA-listed species under NMFS jurisdiction.

The use of BLM right-of-way for the temporary staging area could directly and indirectly affect birds, including ESA-listed species, Special Status Species, and migratory bird species. The potential impacts to birds would result from project-related noise and lighting, increased human activity from interest in the wreck removal, possible trampling by project personnel or machinery, and the presence of the overhead construction transporter cable.



Noise emitted from project activities may result in temporary disturbance to birds present near the staging area. Noise emitted from construction equipment (e.g., vibratory pile driver, bulldozer, and trucks) could increase noise levels along the shore and disturb normal bird behavior. Construction activities would not create loud sudden noises, which can be more detrimental to birds than continuous elevated noise. Construction-related noise would be limited to the initial setup of the staging area and bypass road, and the final demobilization. During shipwreck removal activities, project-related noise at the shoreline staging area would be limited to vehicle traffic and generators, which would not likely affect normal bird behavior.

Nighttime lighting within the staging area would occur throughout the duration of the project and would be focused on the immediate work area, minimizing illumination of the surrounding beach. Lighting may attract predatory birds such as crows, ravens, and gulls to the area, potentially resulting in increased predation of shore birds. Nighttime lighting would not have a long-term effect on bird populations or bird habitat in the study area.

The wreck removal activities could increase visitation in the vicinity of the shoreline staging area. This increase in human presence over existing conditions may increase the probability of human encounters with birds in the area. Birds would likely avoid areas of increased human activity.

The use of machinery and presence of Titan personnel on the beach may increase the likelihood of trampling of shorebirds; however, this increase would be very small and of short duration relative to the existing use of the beach by recreational vehicles.

The height of the construction transport cable would range from 30 to 80 feet above the land and water surface. Although unlikely, birds may unknowingly collide with these cables during flight, resulting in potential direct harm or mortality to individuals.

Overall, the potential effects of the proposed action on birds, including Special Status Species and migratory species, would be short term, and would not jeopardize any local bird populations.

The potential effects of the proposed action on ESA-listed bird species are detailed in the USFWS Biological Assessment (Appendix B) and summarized in Table 3-3.

Table 3-3. Determination of Effects on ESA Listed Bird Species

Federally-Listed Species	Status	Determination of Effects
Western Snowy Plover	Threatened	<i>May affect – likely to adversely affect</i>
California Brown Pelican	Endangered	<i>May affect – likely to adversely affect</i>
Marbled Murrelet	Threatened	<i>May affect – likely to adversely affect</i>

The “may affect – likely to adversely affect” determination indicates that these bird species are likely to respond in a negative manner when exposed to project activities and equipment. The use of heavy equipment on the beach could disrupt snowy plover use of



beach habitat in the project study area and low hanging cables associated with the construction transporter may impede the flight of brown pelican or marbled murrelet.

Measures to avoid and minimize impacts of the wreck removal and associated activities on ESA listed species were developed as part of the Biological Assessment (see Appendix B). Following its review of the Biological Assessment, USFWS will issue a Biological Opinion enacting terms and conditions on project-related activities to protect ESA-listed species under USFWS jurisdiction.

Cumulative Impacts

The right of way use of BLM lands on the North Spit would be temporary and all structures in the staging area would be removed. Following removal of the structures, Titan would regrade the staging area site to match the height and shape of the adjacent foredunes, and contour the bypass road to its original slope. These areas would be seeded with an agency approved seed mix. This temporary use is not expected to have any cumulative impacts on wildlife of the North Spit.

3.5 Vegetation

The study area for vegetation is the project site and immediate adjacent lands.

3.5.1 Affected Environment

Many of the plant associations on the North Spit were not present before the 1930s, including many currently found in the study area. Extensive planting of European beach grass, scotch broom, and tree lupine from 1910 through the 1930s helped establish the current plant communities in the study area. The planting of these exotic species changed the soil chemistry to enable several plant species to thrive on the North Spit that otherwise would not have been able to exist in such a poor nutrient environment (Christy et al., 1998).

The study area is sparsely vegetated by shore pine, Scotch broom, and European beach grass. The project site includes the sand road bordered by shrubs and grasses to the west, and shrubs and wetlands to the east. The wetlands are dominated by various sedge species (*Carex sp.*), according to a DSL wetland survey.

Table 3-4 identifies Plant Special Status Species known and suspected to occur on the North Spit. There are no documented Special Status Species on the project site.



Table 3-4. Plant Special Status Species documented or suspected on the North Spit.

Species Name	Status	North Spit Presence	Habitat
Pink sandverbena <i>Abronia umbellata breviflora</i>	BS	Documented	Annual herb, coastal beaches and dunes at <100 feet elevation
Wolf's evening-primrose <i>Oenothera wolffii</i>	BS	Suspected	Biennial herb, base of coastal bluffs
Dwarf brodiaea <i>Brodiaea terrestris</i>	BS	Suspected	Perennial forb or herb, stabilized dunes and meadows
Short-stemmed sedge <i>Carex brevicaulis</i>	BS	Suspected	Perennial, stabilized sand dunes and meadows
Timort <i>Cicendia quadrangularis</i>	BS	Suspected	Coastal wetlands, valley grasslands, northern oak woodlands, foothills, and woodlands
Spoonwort <i>Cochlearia officinalis</i>	STR	Suspected	Annual, biennial, and perennial forb or herb, coastal headlands, seabird nesting areas on offshore rocks at <150 feet elevation
Whorled marsh pennywort <i>Hydrocotyle verticillata</i>	BS	Documented	Perennial vine, forb or herb, swampy ground, lake margins, wetlands, primarily coastal at <300 feet elevation
Northern bog clubmoss <i>Lycopodiella inundata</i>	BS	Suspected	Perennial subshrub or shrub: rhizomatous fern, coastal wetlands, moist conditions in lake and pond margins, muddy depressions, peat bogs, fens, edge and coastal habitats
Adder's-tongue <i>Ophioglossum pusillum</i>	BS	Documented	Perennial forb or herb, marsh edges, low pastures, grassy roadside ditches, coastal wetlands
Lichen <i>Bryoria pseudocapillaris</i>	BS	Documented	Rock, conifer bark, and Sitka spruce in exposed coastal headlands in many areas
Lichen <i>Bryoria spiralifera</i>	BS	Documented	Shore pine and Sitka spruce in coastal habitats in many sites along tree lines
Lichen <i>Bryoria subcana</i>	BS	Suspected	Bark and wood of Sitka spruce, Western hemlock, Douglas-fir, and hardwood forests along coastal bays, streams, and dune forests within 30 miles of ocean
Liverwort <i>Diplophyllum plicatum</i>	BS	Documented	Western red cedar, Douglas-fir, and western red cedar stumps and tree boles, older shrub such as vaccinium sp. and rhododendron sp., in the Port-Orford Cedar stand
Lichen <i>Erioderma soledatum</i>	BS	Documented	Ericaceous shrubs in coastal forests, found on rhododendrons and vaccinium next to the Transpacific highway

BS = bureau sensitive, STR = bureau strategic species.



3.5.2 Environmental Consequences

3.5.2.1 No Action Alternative

The No Action Alternative would result in no change to the existing conditions of vegetation in the study area.

3.5.2.2 Proposed Action Alternative

Direct and Indirect Impacts

The development of the shoreline staging area and bypass road would require the removal of vegetation; however, most vegetation that would be removed is non-native species and would likely re-establish itself in the following growing seasons. No wetland vegetation would be removed or modified. Use of the South Dike and Foredune roads would not require any vegetation removal. Following completion of the wreck removal operation, the shoreline staging area and bypass road would be contoured and seeded with an agency approved seed mix.

There is no indication that the proposed action would threaten populations of plant Special Status Species.

The proposed action would have no indirect effects on vegetation.

Cumulative Impacts

The proposed action would not contribute to a cumulative impact on vegetation in the study area.

3.6 Recreation

3.6.1 Affected Environment

The North Spit provides unique opportunities for free access to 1,864 acres of undeveloped public land for recreation. The North Spit is designated as a Special Recreation Management Area (SRMA) in the Coos Bay District Resource Management Plan (USDI BLM, 1995). Under the SRMA designation, the BLM provides access for ocean, coastal, and bay-front-dependent recreation activities while protecting natural, cultural, and scenic resources. A wide variety of recreational activities occur on the North Spit, including, but not limited to clamming, crabbing, horseback riding, hiking, wildlife viewing, camping, birding, surfing, fishing, hunting, and target shooting. Motorized access is permitted on designated roads only.

The primary access to the lands on the North Spit is via Trans Pacific Lane, a paved county road. Direct access to BLM public lands is by South Dike Road, a sand road which intersects with the Trans Pacific Lane. BLM lands can also be accessed by the Bayside Road, a sand road that connects with the southern end of Trans Pacific Lane on Port of Coos Bay-administered land. These unmaintained sand roads form a loop around



the perimeter of the spit and provide motorized access to the ocean beach, the north jetty, and Coos Bay. BLM traffic counters indicate that on average, each year from 2002 through 2004, more than 8,000 people visited the interior lands of the North Spit, in an estimated 3,565 vehicles per year with an average of 2.5 people per vehicle (BLM, 2006).

The BLM maintains one three-acre developed site on the spit: the North Spit boat launch facility. The facility offers a free boat ramp, parking, restrooms, drinking fountain, public pay phone, and information kiosk. BLM traffic counters indicate nearly 7,000 people visited the boat launch annually from 2000 through 2004. Over this 5-year period, 454 boats were launched on average annually.

According to Stuart Love of the Oregon Department of Fish and Wildlife (ODFW), 1 to 10 anglers per day use the north jetty. The north jetty can be accessed via the Foredune Road or via the Bayside Road, both of which are sand roads permitted for use by motorized vehicles. The Bayside Road is tidal limited; i.e., it is not drivable during high tide. In general, north jetty anglers access the north jetty during low tide from either Bayside Road or Foredune Road and leave during high tide along Foredune Road, because the Bayside Road is inaccessible during high tide (ODFW, 2007).

Recent U.S. Department of Agriculture (2005) research studied the amount of money people spent while engaging in specific recreational activities in the Pacific Northwest such as boating, horseback riding, camping, etc. The study suggests the average estimate of consumer spending is \$43.64 per person per day across all recreational activities studied, in 2004 dollars. Using that estimate, it is reasonable to calculate 7,000 (boat launch visitors) + 8,000 interior visitors = 15,000 x \$43.64 = \$654,600, annually spent in the North Spit area by people recreating. There would be some double counting, because some of the people who go to the jetty may stop at the boat ramp restrooms, but also some missed counts, for those who do not travel where the traffic counter is located. This estimate does not include the more popular Dunes National Recreation Area to the north or the state and county parks to the south.

There has been a rise in equestrian use the last several years on the North Spit. The BLM has a Group Volunteer Agreement with Oregon Equestrian Trails to assist in identifying, marking, and maintaining a foot and horse trail system covering approximately 12 miles. A small equestrian staging area has been proposed adjacent to South Dike Road near its intersection with Trans Pacific Lane, in the North Spit Plan (USDI BLM, 2005). The proposed equestrian staging area is currently used by equestrians and campers.

For many years the South Dike and Foredune sand roads have served as access to the north jetty, ocean beach, and interior lands of the spit. Most of the land remains in a natural setting with no other developments. Besides the sand road system, the North Spit ocean beach is also used by vehicles; however, the section from the FAA tower south to the north jetty is closed to vehicles from March 15 to September 15 each year during snowy plover nesting season.



3.6.2 Environmental Consequences

3.6.2.1 No Action Alternative

The No Action Alternative would result in no change to the existing conditions of recreation resources in the study area.

3.6.2.2 Proposed Action Alternative

Direct and Indirect Impacts

The proposed action would not affect public access to North Spit recreation opportunities. Pedestrians, equestrians, and vehicles would have continued access on South Dike Road and Foregone Road, with use of a bypass road to avoid the restricted access area around the shoreline staging area. Beach access would not be affected by the proposed action, with the exception of the restricted access area.

The cable for the construction transporter would be at sufficient height for pedestrians, equestrians, and vehicles on the beach to pass underneath it. In the interest of public safety, Titan would prevent pedestrians, equestrians, and vehicles from moving underneath the cable while the cable car passes overhead. At other times, persons would be able to traverse the beach under the construction transporter cable at their own risk. Signs would be posted at all beach access points and in the vicinity of the cables to notify the public of potential danger. The restricted access area would be fenced or otherwise marked and Titan personnel would be onsite to direct people around the site.

The temporary closures of South Dike Road and Foregone Road for Titan to transport heavy machinery, deadman anchors, etc. and for medical emergencies, would not likely affect recreational users of the North Spit. Titan would work with state and local officials to ensure these closures provide for the safety of the general public and limit access for the shortest time possible.

The proposed action would not likely result in a decrease in the number of recreational users during the 2008 spring-summer recreation season. The wreck removal operation may be a draw to tourists and increase the number of visitors to the area, which may temporarily boost the local recreational-based economy. The Titan wreck removal team would contribute to the local economy by lodging in North Bend or the City of Coos Bay and patronizing restaurants, outfitters, and other shops there. No long-term indirect impact on the local or regional economy is anticipated to result from the proposed action.

Cumulative Impacts

Other actions at the North Spit have limited public recreation opportunities. Restricted access to vehicles along the beach south of the FAA tower during the snowy plover nesting season was established in 1994. The restricted access area associated with the shoreline staging area is small relative to the area that would continue to be available for recreational use during the wreck removal project. The restriction on access would be temporary, lasting only the duration of the wreck removal project. Traffic would be



detoured onto a bypass road or around the staging area on the beach; therefore, no cumulative impacts to recreational opportunities are anticipated.

3.7 Cultural Resources

The study area for cultural resources is the Area of Potential Effect, which includes the project site and adjacent lands.

3.7.1 Affected Environment

Based on Indian informants, anthropologists, and historians from the early twentieth century recorded as many as 71 Coosan villages within the Coos Bay area (Zenk, 1990). There are no known prehistoric sites on the North Spit.

The Indians of Coos Bay are known to have used the North Spit for subsistence activities, which followed a seasonal pattern dependent on available plant and animal resources. The most important resource was salmon, which was taken from deep water by canoe, or harpooned and clubbed, or trapped upriver in weirs and dipnetted in the rapids (Zenk, 1990). Shellfish, seals, sea lions, elk, and deer were also important resources. Camas, various other roots, nuts, and berries would have also been collected and stored by the Coosan (Darby, 2005).

Villages were built in protected areas on the ocean shore, bay, or rivers and would consist of cedar-planked frame structures. The structures would be 20 to 50 feet long, 10 to 25 feet wide and were excavated from 3 to 6 feet deep. Center posts supported a single ridgepost from which rafter poles sloped down on either side to the ground. The cedar planks would then be lashed to this framework. These structures were considered permanent and would have been used during the winter months. Summer homes would be temporary pole-framed structures covered with reed mats (Zenk, 1990).

A search of the Oregon Archaeological site files at the Oregon State Historic Preservation Office (SHPO) does not show any recent archaeological surveys or reports within the immediate vicinity of the proposed action. The closest survey projects were conducted for the area of proposed BLM land disposal to the Port of Coos Bay, south of South Dike Road (Darby, 2005), and for a cellular communications tower site located approximately one half mile east of the project site (Stipe, 2006). Both surveys did not identify any cultural resources.

The first Euro-Americans to visit the shores of Coos Bay were a brigade with the Hudson's Bay Company in 1826. Commanded by Alexander McLeod, the brigade crossed the spit and moved south along the South Slough to the mouth of the Coquille River (Beckham, 2000). Jedediah Smith in 1828 led a fur-trapping expedition across the North Spit of Coos Bay. Beckham (2000) writes:

They [McLeod and Smith] were the first to write of its [North Spit] presence but neither found it noteworthy. Both however, estimated the channel entrance into the ocean as a mile to a mile and a half wide. Their comments confirm that the North Spit was considerably shorter than its



subsequent configuration when shaped by jetties and sand stabilization projects.

In the 1870s, the Corps began overseeing the project of stabilizing the entrance to Coos Bay for navigation. By 1892, European beach grass was introduced to stabilize the sand and a rail line was built to carry stone to build up the north jetty. Dredging of the entrance to Coos Bay began in 1914.

In 1939, the Corps began reconstruction of the north jetty. A railroad was built to deliver stone to the southern tip of the North Spit for jetty construction. The railroad was an 8-mile extension of the track from the Southern Pacific Coos Bay branch line (Tonsfeldt, 2007). A portion of this railroad grade forms the roadbed of Foredune Road at the project site.

The BLM has completed a National Register of Historic Places (NRHP) evaluation of the North Spit Railroad as part of a historic district, and concludes that “the railroad retains sufficient integrity to convey its historic associations and qualify it for National Register eligibility. The North Spit railroad is proposed for NRHP eligibility as part of a potential historic district, rather than a stand-alone resource” (Tonsfeldt, 2007). The section of the North Spit Railroad grade potentially affected by the proposed action has been heavily impacted from recreational use and much of the original grade is gone. Additionally, there are no recorded intact artifacts associated with the railroad. Ward Tonsfeldt (2007), in his evaluation of the historic North Spit Railroad, indicated that the railroad grade retains its engineering elements; however, it has been reused as a motor vehicle road and industrial and civil engineering features have become indistinct and are not noticeable to the general public. BLM archaeologist Steve Samuels has indicated that this area was heavily disturbed during the original attempt at removal of the New Carissa in 1999 (USDI BLM, 2007). Heavy equipment and trucks were located on the grade, foredune, and beach at that time.

3.7.2 Environmental Consequences

3.7.2.1 No Action Alternative

The No Action Alternative would not involve ground-disturbing activities that could affect archaeological sites. The No Action Alternative would not affect any historic resources, including the grade of the North Spit Railroad.

3.7.2.2 Proposed Action Alternative

Direct and Indirect Impacts

The activities associated with construction of the shoreline staging area would disturb a 200-foot segment of the historic North Spit Railroad grade, but the effect would not be adverse because it would not alter the railroad’s association with events that have made it a significant contribution to the history of the North Spit. Titan plans to level the foredune at the staging area site to the level of the historic road/grade and cover newly exposed areas with a heavy gauge mesh to prevent settling and minimize the need for



additional grading during the wreck removal process. The foredune would be restored match the shape and height of the adjacent foredunes following the wreck removal. Correspondence from the SHPO regarding this finding of no adverse effect is provided in Appendix C. No impacts to prehistoric or historic archaeological resources are anticipated as a result of these construction activities. No known prehistoric or historic archaeological resources are in the area of potential impact. Because there would be no adverse effects to the historic North Spit Railroad grade, no specific avoidance or minimization efforts would be incorporated into the project.

It is possible that some activities associated with the construction of the shoreline staging area could affect unknown intact archaeological deposits. The proposed action would have no indirect impacts on cultural resources.

Cumulative Impacts

The proposed action would not contribute to a cumulative effect on archaeological or historic resources in the study area.

3.8 Residual Impacts

No long-term effects are anticipated to result from the temporary use of BLM-administered lands. All equipment would be removed at the completion of New Carissa wreck removal activities and the staging area, Foredune Road, and disturbed areas would be graded to preconstruction conditions to the extent possible. The shoreline staging area site and bypass road corridor would be seeded, and revegetation of the disturbed area would occur in the following growing seasons.



4.0 List of Preparers

BLM

Linda Petterson, Realty Specialist

HDR

Leandra Cleveland, Wetlands Biologist

James Gregory, Quality Control Reviewer

Matthew Hutchinson, Wildlife Biologist

Carol Snead, Environmental Planner

Lucie Tisdale, Cultural Resource Coordinator

TITAN

Shelby Harris, Wreck Removal Team Leader

Phil Reed, Wreck Removal Project Manager



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Figures



Figure 1-1
Project Location

Land ownership

- Amy Corps of Engineers
- Bureau of Land Management
- Private
- US Forest Service
- State of Oregon

Roads and Other Features

- New Carissa wreck location
- Staging area
- Staging area access road
- Major highways
- Minor roads
- Unimproved road
- FAA tower

0 1,500 3,000 4,500 Feet

Source: BLM, State of Oregon

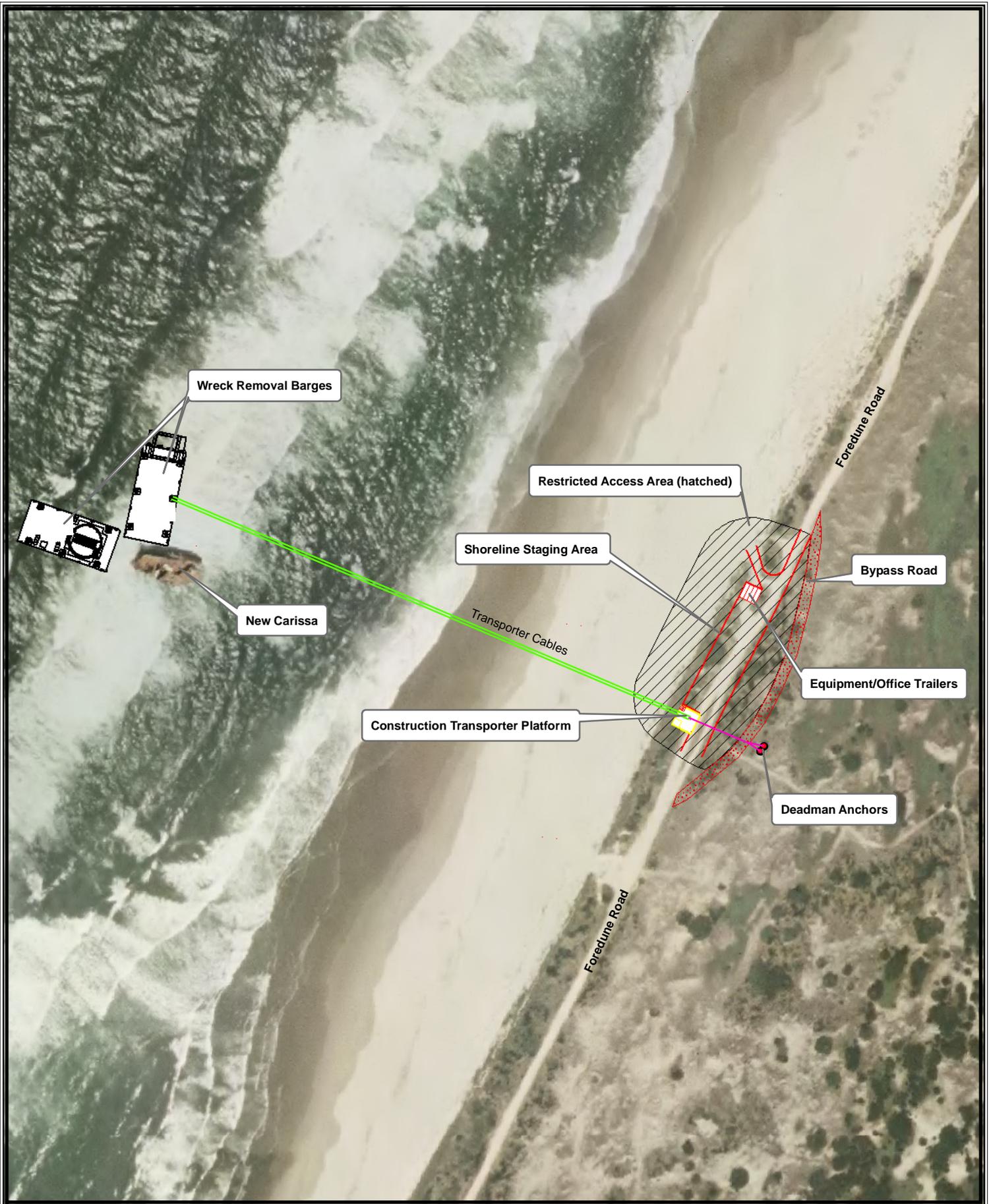


Figure 2-1
Shoreline Staging Area Site Plan

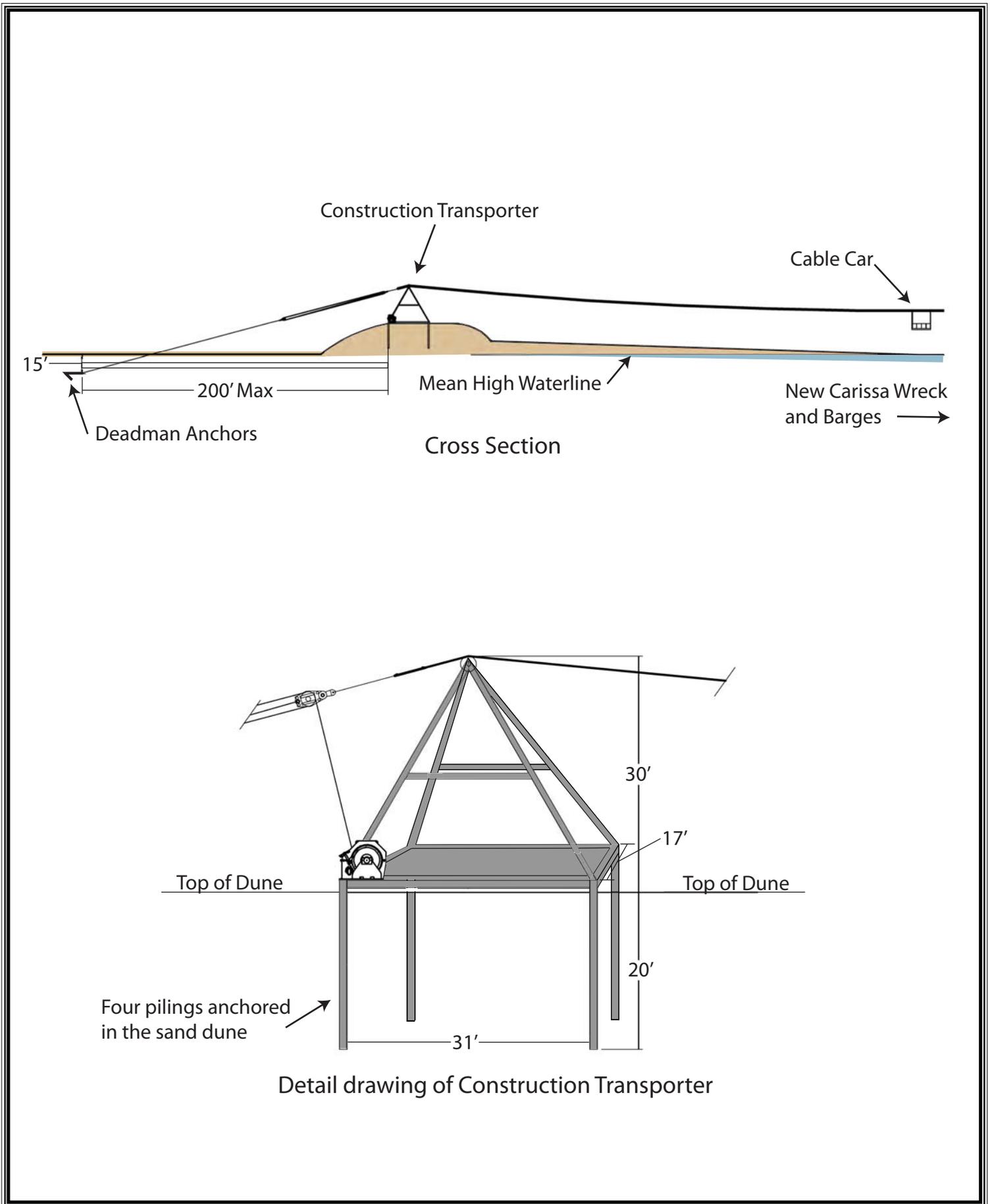
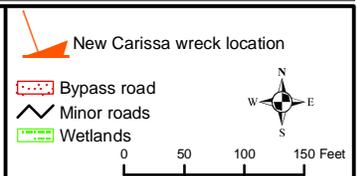


Figure 2-2

Staging Area for the Construction Transporter
New Carissa Wreck Removal Project



Figure 3-1
Schematic Plan
 Wetlands Near Shoreline Staging Area



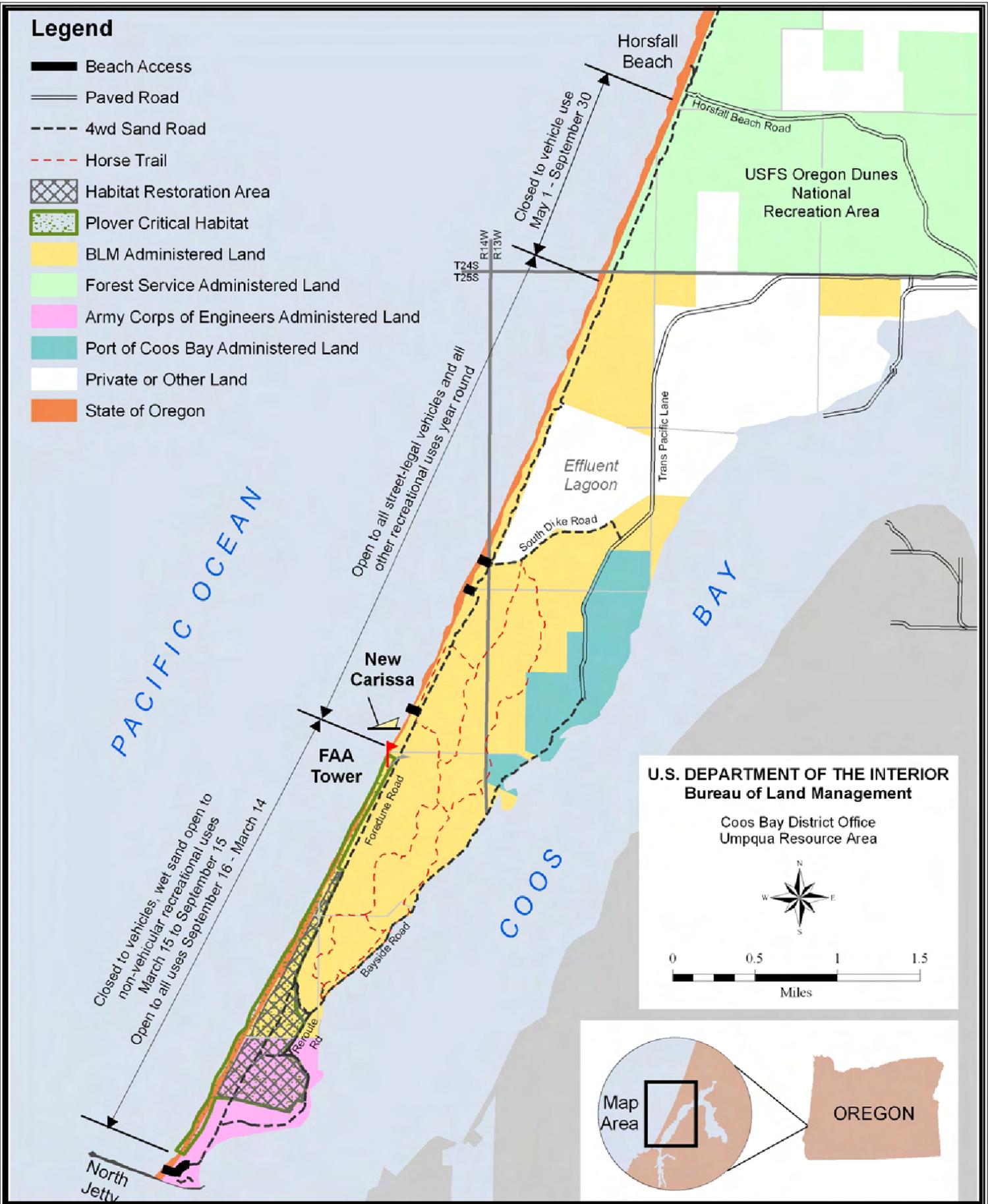


Figure 3-2
Site Map

Western Snowy Plover Critical Habitat and Restricted Areas

Source: BLM

Appendix A

Site Safety Plan



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M/V NEW CARISSA

SITE SAFETY PLAN

16 Nov 07



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SECTION I - NOTICE OF EMERGENCY INCIDENT Procedure 1.0 - Warning of Imminent Personal Risk

I. 1.0 (a) TITAN is a marine salvage and wreck removal contractor. Marine salvage and wreck removal operations are emergency response activities. Salvage and wreck removal are direct results of extreme conditions suffered by the casualty vessel(s) that have necessitated this emergency response.

I. 1.0 (b) Situations may be encountered during this emergency response that will inherently pose the risk of personal injury, loss of life, loss of property, and environmental disaster.

SECTION I - NOTICE OF EMERGENCY INCIDENT Procedure 2.0 - Rapidly Evolving Situations

I. 2.0 (a) Rapidly evolving situations and changing conditions occur during marine salvage and wreck removal operations. Risk management assessments will be conducted prior to initiating all response activities. Response activities will be re-assessed to better manage any new risks imposed by changing situations or conditions.

SECTION I - NOTICE OF EMERGENCY INCIDENT Procedure 3.0 - Safety Standards Applied
--

I. 3.0 (a) TITAN is committed to providing the safest working conditions possible through the application of:

- 1) Generally Accepted Industry Safety Standards,
- 2) Material Resources,
- 3) Engineering Controls
- 4) Good Judgment, and
- 5) Individual Team Member Performance Shaped By Training and Awareness



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SECTION I - NOTICE OF EMERGENCY INCIDENT Procedure 4.0 - Site Safety Management Through Standard Operating Procedures
--

I. 4.0 (a) As a practical means of ensuring personnel safety during situations where speed is of the essence, TITAN has elected to manage site safety issues through reliance on Standard Operating Procedures. Although these procedures are administratively lean, together with salvage personnel training, they represent a systematic and rational approach to managing site safety during the evolution of marine salvage and wreck removal operations.

I. 4.0 (b) Temporary deviations from Standard Operating Procedures are allowed if, in the judgment of the Salvage Master, such deviations are necessary to better manage safe working conditions during unforeseen and rapidly evolving situations.

SECTION I - NOTICE OF EMERGENCY INCIDENT Procedure 5.0 - Duties of Salvage Team Members During An Emergency Response

I. 5.0 (a) It is the duty of each salvage team member working on an emergency response to read and become familiar with this Site Safety Plan.

I. 5.0 (b) Each salvage team member shall follow the Standard Operating Procedures adopted by TITAN and engage in safe work practices.

I. 5.0 (c) Each salvage team member shall correct or notify their immediate supervisor of any potential hazard or unsafe work practice.

I. 5.0 (d) Team members shall report all accidents to their immediate supervisor. This includes near misses (accidents without injury or property damage). This procedure serves to bring unsafe conditions to the attention of the Salvage Master.



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SECTION II - SITE DESCRIPTION Procedure 1.0 - Project Name and Job Number
--

II. 1.0 (a) For purpose of identification, TITAN is referring to this marine salvage and wreck removal operation as:

Project Name: M/V NEW CARISSA – Wreck Removal of Stern Section

Project Number: 6031

SECTION II - SITE DESCRIPTION Procedure 2.0 - Location

II. 2.0 (a) All *verified* location information is relevant during an emergency response. The following information identifies the location of this marine salvage and wreck removal operation.

Country	USA
State or Province	Oregon
County	Coos
City / Town	Coos Bay
Ocean	North Pacific

Latitude	N 43° 23.53
Longitude	W 124° 18.38



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SECTION II - SITE DESCRIPTION Procedure 3.0 - Site Geography

II. 3.0 (a) This marine salvage and wreck removal operation is located:

At Sea In the Surf Zone In a River In a Harbor

Other: _____

II. 3.0 (b) Topography:

Cliffs Rocky Cobble Beach Sandy Beach
 Marshes Other: _____

II. 3.0 (c) Surrounding population is:

Industrial Residential Rural Unpopulated

II. 3.0 (d) Environmental Sensitivities:

Birds Marine Mammals Fish Mammals / Reptiles

Other: Snowy Plover Habitat nearby

II. 3.0 (e) Economic Sensitivities:

Aquaculture / Fish Farms Agriculture Industrial / Commercial Uses
 Recreational Use Other: Commercial Fishing

SECTION II - SITE DESCRIPTION Procedure 4.0 - Work Zone Designation
--

II. 4.0 (a) The following areas designate the work zone for this marine salvage and wreck removal operation:

Casualty: M/V NEW CARISSA

Support Vessels: KARLISSA A & KARLISSA B

Dock / Pier / Berth: Empire Docks, Coos Bay, OR (Sause Brothers facility)

Primary Staging Area: Shoreside area near dune line, approx 1,000 feet east of wreck, in north spit area

Logistics Base: Initially Sause Brothers yard and ultimately same as Primary Staging Area. Personnel will be housed at the Red Lion Inn in Coos Bay, OR.



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SECTION III- SITE ORGANIZATION Procedure 1.0 – Command Procedures

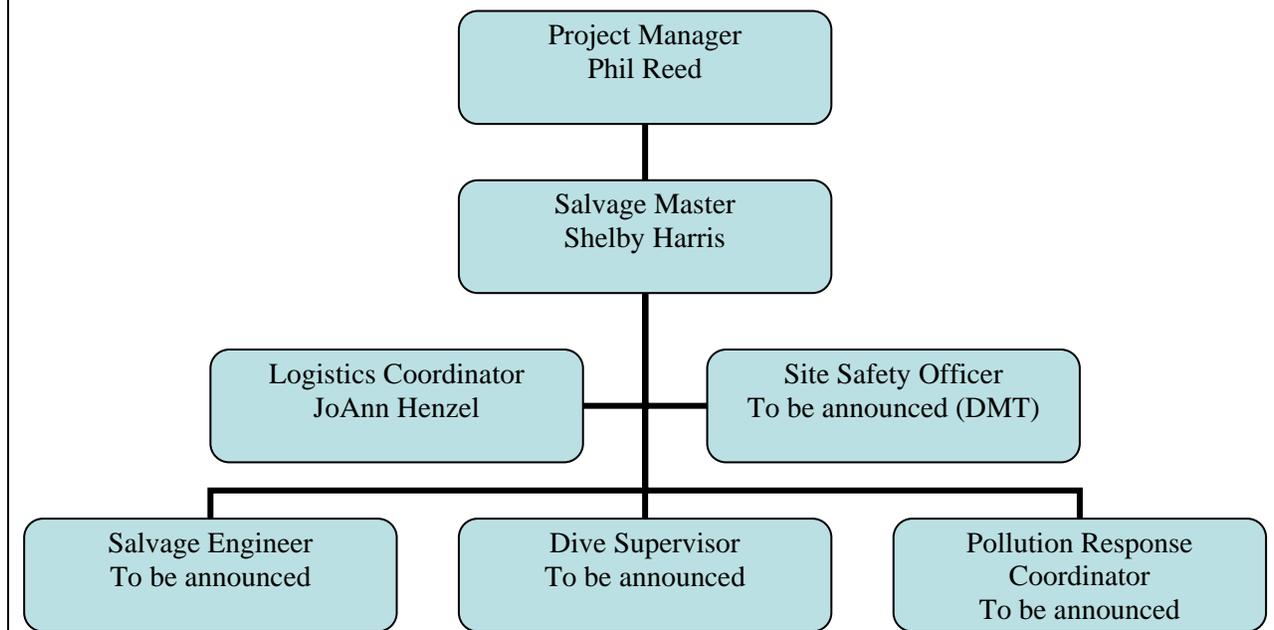
III. 1.0 (a) The Salvage Master shall assume control of the marine salvage and wreck removal operation. He is responsible for the safety of the salvage personnel and their equipment deployed during an emergency response.

III. 1.0 (b) The functions of the Salvage Master include:

- ❑ Hazard Assessment
- ❑ Evaluation of the Casualty
- ❑ Establishment of An Effective Chain-of-Command
- ❑ Control of the Communications Process
- ❑ Development of a Salvage Plan
- ❑ Execution of the Salvage Plan
- ❑ Continual Re-assessment of All Aspects of the Salvage Operation
- ❑ Provision for the Continuity, Transfer, and Termination of the Salvage Operation

III. 1.0 (c) As conditions dictate, the Salvage Master may delegate some of his functions to subordinates in an effort to leverage his expertise and expedite the response operation.

SECTION III- SITE ORGANIZATION Procedure 2.0 – Organization Chart





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SECTION IV - SALVAGE PLAN

Procedure 1.0 – Brief Summary

IV. 1.0 (a) The Salvage Master develops a detailed Salvage Plan during each marine salvage and wreck removal operation. A brief summary of that salvage plan is excerpted below for general information only.

The wreck stern section is currently lying approximately 150 yards off the beach near Coos Bay, Oregon. The forward end of the wreck is facing the beach, listing approx 45° to starboard and is trimmed slightly forward. The wreck is completely flooded to the outside waterline.

The primary site hazards include the following:

- Personnel injury while working topside in/near damaged hull structure, in/near water, especially during periods of significant swell
- Underwater hazards during diving operations
- Evacuation of injured personnel along sole vehicular evacuation route

Titan will mobilize their two jack up barges, KARLISSA A and KARLISSA B. These will be positioned and jacked up alongside the wreck. The barges will serve as the work and heavy lift platforms. The portion of the wreck above the waterline will be cut up manually and removed using our crane on board the KARLISSA B. The portion of the wreck below the waterline will be removed using Titan's linear hydraulic pullers (which will be affixed to both barges). This lifting method will make it possible for us to slowly lift that underwater section and therefore enable us to manually cut, lift and remove pieces from that section. All scrap pieces will be stored on one of the jack up barges.



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SECTION V - SAFE WORKING PRACTICES

Procedure 1.0 – Daily Safety Review

V. 1.0 (a) Titan Maritime conducts a *Daily Safety Meeting* to document site conditions and facilitate the application of Standard Operating Procedures. A blank copy of the *Daily Safety Meeting Report form* has been included as **ATTACHMENT I**.

V. 1.0 (b) The Salvage Master, or his designate, conducts the *Daily Safety Meeting report* once per day. The document may be used more frequently, such as at a shift change or when conditions dictate the need for a systematic hazard evaluation. The *Daily Safety Meeting Report* serves the dual purpose of:

- 1) Documenting Site Safety Conditions, and
- 2) Acting As the Information Source for Site Safety Meetings

SECTION V - SAFE WORKING PRACTICES

Procedure 2.0 – Required Safety Precautions to Mitigate General Work Zone Hazards

V. 2.0 (a) All work zones in marine salvage and wreck removal operations possess general hazards that can be mitigated by adhering to the required safety precautions listed in the paragraphs of this procedure. These required safety precautions shall be universal to all TITAN projects. The Salvage Master may authorize temporary deviations from these precautions in an effort to manage changed conditions for the greater benefit of all on-site.

V. 2.0 (b) Employees shall wear clothing suitable for the weather and work conditions. The minimum clothing requirements shall be as follows:

- Short Sleeve Shirt
- Long Trousers
- Steel-toed Footwear
- Task-Suitable Gloves When Engaged in Operations Hazardous to Your Hands
- Hard Hats During Crane Operations or When Exposed to Work Overhead
- Personal Flotation Device (PFD) When Working Over or Adjacent to the Water

V. 2.0 (c) Additional Personal Protective Equipment (PPE), beyond the minimum clothing requirements, may be prescribed by hazard-specific Standard Operating Procedures and Job Safety Analyses (JSA). A blank JSA form has been included as **ATTACHMENT II**.



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V. 2.0 (d) Exclusionary and Warning Devices shall be used to call specific attention to hazardous areas, spaces and conditions.

Examples of common Exclusionary and Warning Devices are as follows:

- Road Cones
- Reflective Tape
- Exclusionary Tape
- Spray Paint
- Signage

V. 2.0 (e) Exclusionary and Warning Devices will be used to mark:

1. Open Deck Hatches and Manways
2. Hull Breaches
3. Tripping Hazards
4. Overhead Hazards
5. Spaces Containing Hazardous Atmospheres
6. Confined Spaces

V. 2.0 (f) Site Control is required to strictly account for all personnel on marine salvage and wreck removal site. The Salvage Master shall at all times know the number of personnel aboard the casualty and the site.

V. 2.0 (g) The basic components of site control are:

- Preparation and Maintenance of a Crew List
- Designation of an Emergency Muster Point
- Identification of Work Zones
- Standardization of Site Communication Procedures



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SECTION VI - APPLICABLE STANDARD OPERATION PROCEDURES

Procedure 1.0 – Hot Work

VI. 1.0 (a) Hot work refers to any flame or spark producing operation such as welding, burning and grinding.

VI. 1.0 (b) Personnel engaged in hot work should wear adequate flame and heat resistant clothing. Appropriate darkened lens eye protection must be worn during burning and welding. Impact resistant eye protection and/or face shields should be worn during grinding and chipping activities.

VI. 1.0 (c) Prior to commencing hot work, the work area should be visually inspected for combustible materials. Combustible materials within the work area should be placed a safe distance away from the hot work activity. A fire blanket should protect combustible materials that cannot readily be removed from the hot work area.

VI. 1.0 (d) Fire extinguishers should be staged at conspicuous readily accessible locations within the hot work area. Congested areas or those spaces with elevated fire danger may require a dedicated fire watch person.

VI. 1.0 (e) A competent person should test the atmosphere in the hot work area for the presence of combustible gases. No hot work can begin if vapors exceed 10 percent of the lower explosive limit. The atmosphere should be retested as conditions change aboard the casualty.

SECTION VI - APPLICABLE STANDARD OPERATION PROCEDURES

Procedure 2.0 – Confined Space

VI. 2.0 (a) The presence of ANY of the following conditions defines a confined space:

- 1) Limited access for entry or exit
- 2) Unsuitable conditions for continuous human occupancy
- 3) Contains, or has the potential to contain, a hazardous atmosphere
- 4) Contains material with the potential to engulf an individual
- 5) Possess an internal configuration such that an entrant could become trapped or asphyxiated by inwardly converging walls
- 6) Downward sloping floors that taper to a smaller cross-section



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VI. 2.0 (b) Entry into a Confined Space requires the presence of the following competently trained persons:

- 1) Entry Supervisor - responsible for making certain that all requirements for entry have been met before allowing anybody into the confined space
- 2) Entrant - an individual trained and authorized to enter the confined space
- 3) Attendant - an individual stationed outside the confined space who controls access, monitors the entrants' safety and summons rescue assistance when required

VI. 2.0 (c) The following pre-entry conditions must be met and documented prior to attempting entry into a confined space:

- 1) Lock-out / Tag-out (LO / TO) - the confined space must be completely isolated from all energized systems
- 2) Emergency Rescue - rescue equipment and personnel must be in-place to provide rescue assistance
- 3) Personal Protective Equipment (PPE) - entrants and attendants must wear appropriate PPE
- 4) Ventilation - a hazard appropriate ventilation system must be functioning
- 5) Fire Extinguishers - staged no further away than the entrance to the confined space
- 6) Communications - procedures established and tested
- 7) Lighting - adequate source of illumination provided

VI. 2.0 (d) Atmospheric testing is required prior to confined space entry. Periodic monitoring is required while personnel are inside the confined space. Tests for oxygen content and combustible gas are the minimum atmospheric monitors required. Additional testing for toxicity may be required if evidence suggests those hazards could potentially exist. All monitoring equipment will be calibrated before each use.

SECTION VI - APPLICABLE STANDARD OPERATION PROCEDURES

Procedure 3.0 – Lock-out / Tag-out (LO / TO)

VI. 3.0 (a) Lock-out / Tag-out (LO / TO) procedures shall be used whenever the potential exists for personnel to be injured by the unexpected start-up or release of an energized system. Common shipboard energy sources include electrical, hydraulic, and pneumatic (compressed air), steam and spring-loaded mechanical systems.

VI. 3.0 (b) Lock-out procedures refer to the placement of a padlock or an equivalent locking device on the subject equipment to prevent its accidental activation. The equipment being isolated cannot be operated until the lockout device is removed.



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VI. 3.0 (c) Tag-out procedures affix a conspicuous notice or warning on all components or systems that have been purposely de-energized to safely accommodate a critical operation. Such equipment must remain deactivated for the duration of the tag-out procedure.

VI. 3.0 (d) LO / TO procedures are initiated by the Titan Salvage Engineer or the immediate supervisor with authority over the subject equipment that the energized systems need to be deactivated.

VI. 3.0 (e) To ensure that equipment cannot be re-energized during pertinent salvage operations, Titan personnel and the personnel with authority over the equipment will agree to either a lock-out or a tag-out procedure to secure the equipment.

VI. 3.0 (f) Prior to performing any work activities, personnel will operate the *start and stop* controls on the locked-out / tagged-out equipment to verify that the unit has been properly deactivated.

VI. 3.0 (g) The following procedures should be performed after completion of the operation requiring LO / TO procedures:

- Check that all tools have been removed from the machine
- Re-install any protective guards removed during execution of the work
- Notify the immediate supervisor with authority over the equipment
- Remove all lock-out / tag-out devices
- Operate the *start and stop* controls to restore energy to the equipment

SECTION VI - APPLICABLE STANDARD OPERATION PROCEDURES

Procedure 4.0 – Lift Plan

VI. 4.0 (a) Lift plans utilize the crane's load capacity and the task specific rigging requirements to classify the following three lifting strategies:

General Lifts – Small scale lifts within normal salvage and wreck removal operations. All lifts in this category are well within the lifting capacity of the crane. These lifts only require a daily rigging inspection.

Major Lifts – Those lifts that are less than 75% of the crane's upper load capacity but whose configuration requires special attention to rigging
Critical Lifts – Exceed 75% of the crane's load capacity.



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VI. 4.0 (b) Load weights can be estimated until they reach 75% of the crane's load capacity. Loads above the 75% threshold must have their weights verified by actual weight calculations. Load weights will be calculated with all rigging components considered as part of the load.

VI. 4.0 (c) Rigging components will be inspected daily by members of the salvage detail.

VI. 4.0 (d) Hazards within the swing radius of the crane will be identified prior to raising the load.

VI. 4.0 (e) Tag lines will be used to control the load.

VI. 4.0 (f) Prior to commencing lift operations, a communications plan will be established between the crane operator and the riggers. Communications may be established by either radio or by hand signals, however, only one individual will give directions to the crane operator. For blind situations where hand signals have been established as the means of communication, a relay of hand signals is acceptable.

SECTION VI - APPLICABLE STANDARD OPERATION PROCEDURES

Procedure 5.0 – Hazardous Atmospheres

VI. 5.0 (a) To prevent personnel from entering hazardous atmospheres, air monitoring will be conducted in all spaces suspected of oxygen deficiency, potentially explosive conditions and toxic vapors.

VI. 5.0 (b) Competent persons will employ direct reading instruments to quantify the chemical constituents within potentially hazardous atmospheres. Commonly used direct reading instruments on salvage sites include:

- Combustible gas / oxygen / toxics multi-meters
- Photo ionization detectors (PID)
- Draeger tubes
- Carbon monoxide monitors

VI. 5.0 (c) Sources of potentially hazardous atmospheres will be isolated to control contamination.

VI. 5.0 (d) Where appropriate, mechanical and/or natural ventilation will be used to lower vapor concentration improve air quality and control fugitive dust. SCBAs shall be used to enter spaces where ventilation is unable to lower the hazard to an acceptable limit. Entry with SCBAs qualifies as a confined space entry.



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VI. 5.0 (e) Upon stabilization of the hazardous atmosphere, periodic air monitoring will be conducted and recorded as needed but in no case, at an interval less than every two hours.

SECTION VII - SANITATION AND PERSONAL HYGIENE Procedure 1.0 – Sanitation Conditions Aboard A Wrecked Vessel
--

VII. 1.0 (a) Sub-standard sanitation conditions may exist aboard wrecked vessels or vessels undergoing emergency response salvage operations.

VII. 1.0 (b) Salvage personnel should be prepared to operate under less than optimal sanitation conditions. Portable toilets and a wash station will be provided at the casualty and at the primary staging area.

SECTION VII - SANITATION AND PERSONAL HYGIENE Procedure 2.0 – Best Sanitation Management Practices Aboard A Wrecked Vessel

VII. 2.0 (a) To prevent the spread of disease, salvage workers operating aboard a wrecked vessel should follow the best sanitation management practices contained in this procedure.

VII. 2.0 (b) TITAN flyaway salvage kits always contain a supply of waterless hand cleaner, paper towels, disposable cups and potable water.

VII. 2.0 (c) At the minimum, workers should wash their hands with waterless hand cleaner prior to eating and drinking.

VII. 2.0 (d) Use of a common cup (a cup shared by more than one worker) is prohibited. Unused disposable cups should be kept in sanitary containers and waste receptacles should be provided for used cups.



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SECTION VIII - COMMUNICATION Procedure 1.0 – Line of Authority

VIII. 1.0 (a) To minimize conflicting information, communications on a marine salvage and wreck removal site should generally follow the line of authority indicated by the project organizational chart.

SECTION VIII - COMMUNICATION Procedure 2.0 – Radios

VIII. 2.0 (a) Radios are the primary means of communication on marine salvage and wreck removal sites. Depending on individual responsibility and function, the salvage crew will be issued VHF, UHF, “Talk-about” band radios, or NEXTEL handsets.

VIII. 2.0 (b) Because radios are a shared means of communication utilizing a common frequency, valuable airtime should not be occupied with unimportant messages or insignificant details. Crewmembers should maintain awareness of the line of authority and their role within it.

VIII. 2.0 (c) Radio messages should be brief. The language should be plain and precise to facilitate easy understanding.

VIII. 2.0 (d) “May Day” is the universal distress call. It should be used whenever an immediately perilous situation requiring assistance is encountered. When a “May Day” call is transmitted, all non-related radio communications should cease.

VIII. 2.0 (e) All work should cease in the event of a radio system failure until an alternate means of communication has been established.

SECTION VIII - COMMUNICATION Procedure 3.0 – Cellular Phones

VIII. 3.0 (a) Cellular phones will only be permitted by authorization from the Salvage Master.

VIII. 3.0 (b) Crewmembers should exercise special care against accidentally taking energized cellular phones into areas approved for intrinsically safe devices only.

VIII. 3.0 (c) All cellular phones and their numbers should be logged in the job site file.



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SECTION VIII - COMMUNICATION

Procedure 4.0 – Hand Signals

VIII. 4.0 (a) Standard hand signals may be used to supplement radio communications or used in situations where radio communications are impossible.

VIII. 4.0 (b) Standard hand signals are as follows:

Hand Signal	Message
Hands on Top of Head	Need Assistance
Thumbs Up	OK, I am all right, I understand
Thumbs Down	No, Negative
Crossed Arms	All Stop

SECTION VIII - COMMUNICATION

Procedure 5.0 – Sound Signals

VIII. 5.0 (a) Emergency air horns will be located with the Titan flyaway salvage kit and at the Emergency Muster Point.

VIII. 5.0 (b) The following air horn signals will indicate an emergency situation:

Horn Signal	Message
Short Intermittent Horn Blasts	Stop work and report to the Emergency Muster Point
Continuous Horn Blast	Evacuate Site

SECTION IX – EMERGENCY PROCEDURES

Procedure 1.0 – Muster Stations

IX. 1.0 (a) The muster station is the location where workers assemble in the event of a site emergency. Large sites may have more than one muster station with crewmembers pre-assigned to an each muster station. During an emergency, assembly at the muster station enables the Salvage Master to rapidly account for all crewmembers and mount a counter-offensive to the emergency.

IX. 1.0 (b) Muster stations will be confirmed at each safety meeting.



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IX. 1.0 (c) All muster stations will be clearly marked

IX. 1.0 (d) Severe emergencies such as earthquake, fire, or explosion will require assembly at the muster stations.

IX. 1.0 (e) Radio communications or the pre-designated horn signal will announce the order to proceed to the muster station.

IX. 1.0 (f) Normal routes to the muster station may become blocked during an emergency. Alternate routes should be pre-identified and communicated to workers.

IX. 1.0 (g) Workers isolated by an emergency and unable to assemble at the muster station should issue a “Mayday” call on their site radio.

SECTION IX – EMERGENCY PROCEDURES

Procedure 2.0 – Fire

IX. 2.0 (a) All personnel should assemble at their muster station upon notification of a fire or explosion.

IX. 2.0 (b) The Salvage Master will evaluate the fire and communicate a response strategy to those assembled at the muster stations.

IX. 2.0 (c) Salvage team members will use their best professional judgment to determine whether a small isolated fire can safely be controlled through the use of nearby fire extinguishers. In no case should personnel attempt to single handedly combat a growing fire without first notifying others that a fire is in progress.

SECTION IX – EMERGENCY PROCEDURES

Procedure 3.0 – Abandon Ship

IX. 3.0 (a) Abandon ship procedures are unique to each marine salvage and wreck removal operation. At the onset of the job, the Salvage Master will brief response personnel on the specifics of abandon ship procedures.

IX. 3.0 (b) Abandon ship procedures are initiated by an emergency call transmitted on site radios and/or by an emergency blast given on the air horn.



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SECTION IX – EMERGENCY PROCEDURES

Procedure 4.0 – Security

IX. 4.0 (a) Salvage and wreck removal operations often occur in areas of high crime or political unrest. Security can only be maintained by crew vigilance against any suspicious activity.

IX. 4.0 (b) Strict site control will be maintained to prevent unauthorized personnel from boarding the casualty.

IX. 4.0 (c) Emergency radio messages and/or horn signals will be given upon confirmation that a breach of security has taken place.

IX. 4.0 (d) Emergency Evacuation Procedure from NEW CARISSA

Titan will have at least one trained Dive Medic Technician (DMT) on each shift. The DMT is trained to administer first aid/CPR and to prepare the injured for transport to a local medical facility.

The Salvage Master, shift supervisor, shore site supervisor, logistics coordinator and project manager will all have copies of a prepared Emergency Contact List. This will include telephone numbers for local fire rescue, police, hospitals etc. All of the supervisory personnel will have mobile phones and will be able to phone the necessary responders.

First aid will be administered to any injured personnel on site and the injured will be prepared for transport ashore. A Junkin basket (i.e. stretcher and back board) will be used to transport any injured person that is unable to walk.

The preferred means of transport ashore will be via the construction transporter to the shore site. There the person will be transferred to a four wheel drive vehicle and taken to the end of South Dike Road where they will be transferred to an ambulance. For this reason South Dike Road and Foredune Road must be kept clear at all times during the project.

For life threatening injuries, the US Coast Guard rescue helicopter based in North Bend will be requested to retrieve the injured person and transport them to the local hospital. Titan will liaise with the Coast Guard prior to the project and agree the procedure for doing this most efficiently. The construction transporter will be used as a backup to bring the injured ashore if weather does not permit the helicopter to fly (e.g. wind or fog).



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SECTION X – SITE SAFETY OFFICER Procedure 1.0 – Designation of the Site Safety Officer

X. 1.0 (a) The Salvage Master has overall accountability for a marine salvage and wreck removal operation. As such, he is responsible for the safety of salvage personnel and equipment aboard the casualty.

X. 1.0 (b) The Salvage Master shall designate a competently trained individual to be the Site Safety Officer when the Salvage Master's duties exceed his ability to function in a dual capacity as the Site Safety Officer.

SECTION X – SITE SAFETY OFFICER Procedure 2.0 – Duties of the Site Safety Officer

X. 2.0 (a) The Site Safety Officer reports directly to the Salvage Master and is accountable to him for all day-to-day matters concerning safety.

X. 2.0 (b) It is the duty of the Site Safety Officer to explain the Site Safety Plan to each team member and check frequently to see that team members understand and work as the plan directs.

X. 2.0 (c) The Site Safety Officer shall immediately correct unsafe work zone conditions. Conditions that cannot readily be corrected shall be brought to the attention of the Salvage Master.

X. 2.0 (d) A mandatory *Daily Safety Meeting* shall be carried out not less than once per day by the Site Safety Officer.

SECTION X – SITE SAFETY OFFICER Procedure 3.0 – Daily Safety Report

X. 3.0 (a) The individual acting as the Site Safety Officer completes a *Daily Safety Report* to document site conditions and facilitate the application of Standard Operating Procedures and JSAs. A blank copy of the *Daily Safety Report form* has been included as **ATTACHMENT I**.

X. 3.0 (b) The *Daily Safety Report form* is completed not less than once per day. Meetings may be carried out more frequently, such as at a shift change or when conditions dictate the need for a systematic hazard evaluation. The *Daily Safety Report form* serves the dual purpose of:

- 1) Documenting Site Safety Conditions, and
- 2) Acting as the Information Source for Site Safety Meetings



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X. 3.0 (c) Copies of each day's *Daily Safety Report form* will be maintained in the job file. At the end of the project, the completed *Daily Safety Report form* will be returned to TITAN's office for incorporation into the permanent project record.

SECTION XI – SITE SPECIFIC EMERGENCY CONTACT LIST

Procedure 1.0 – Document Requirements

XI. 1.0 (a) A *Site Specific Emergency Contact List* is developed for each marine salvage and wreck removal operation. The list has been included as **ATTACHMENT III**.

SECTION XI – SITE SPECIFIC EMERGENCY CONTACT LIST

Procedure 2.0 – Maintenance of the Emergency Contact List

XI. 2.0 (a) It is the duty of the individual acting as the Site Safety Officer to develop, verify and maintain the *Site Specific Emergency Contact List*. The list will be posted in a conspicuous location on the jobsite.

SECTION XII– ACCIDENT AND INJURY REPORTING

Procedure 1.0 – Reporting Responsibility

XII. 1.0 (a) It is the responsibility of each salvage team member to report any accident, injury or illness to his immediate supervisor.

XII. 1.0 (b) Following any accident, injury or illness, involved team members will complete an *Incident Report, Supervisor (ATTACHMENT IV)*, an *Incident Report, Employee (ATTACHMENT V)* and an *Incident Report, Witness (ATTACHMENT VI)*.

SECTION XII– ACCIDENT AND INJURY REPORTING

Procedure 2.0 – Medical Treatment

XII. 2.0 (a) In advance of project mobilization, arrangements should be made with a local health care facility to provide medical services to salvage team members for work related injury or illnesses.

XII. 2.0 (b) The individual acting as the Site Safety Officer is responsible to see that injured or ill team member(s) receive immediate first aid and/or prompt medical treatment.

XII. 2.0 (c) The individual acting as Site Safety Officer will coordinate payment of medical services for a job related injury or illness with the TITAN office.



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XII. 2.0 (d) Team members who received treatment at a medical facility must obtain a written release from the attending physician prior to returning to duty.

SECTION XIII– PROHIBITION OF DRUGS AND ALCOHOL

Procedure 1.0 – Policy Statement

XIII. 1.0 (a) TITAN strictly forbids the use of controlled substances by its employees and sub-contractors. Any person found using controlled substances, under the influence of controlled substances, or failing to perform their duties in a manner consistent with the safety of themselves or others, as a result of controlled substance use, will be terminated and repatriated at his/her expense. Employees and sub-contract personnel suspected of drug abuse will be requested to take drug tests. Failure to submit to drug testing or testing positive to drug use will result in employment termination and repatriation at the individual's expense.

XIII. 1.0 (b) Work on the job site while under the influence of alcohol is strictly prohibited. Any person found drinking alcohol on the job or failing to perform their duties in a manner consistent with the safety of themselves or others, as a result of alcohol consumption, will be dismissed from the job site without pay. Any subsequent alcohol related dismissal from the job site will result in employment termination and repatriation at one's own expense.

SECTION XIV– AUTHORIZATIONS

Procedure 1.0 – Policy Statement

XIV 1.0 (a) It is the objective of TITAN to minimize jobsite losses of manpower and material resources due to accidental occurrences. Every effort will be made to control jobsite conditions and personal acts that could result in injuries, illnesses and damage to property and equipment.

XIV 1.0 (b) No salvage team member will be required or allowed to expose himself to unsafe conditions in the performance of his work. It is the responsibility of all TITAN team members to recognize the potential hazards of their own activities and, with the assistance of site supervisory personnel, to eliminate any hazards associated with them. Activities that team members feel are unsafe should be discontinued immediately, reported to a supervisor and corrected as quickly as possible.



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SECTION XIV – AUTHORIZATIONS
Procedure 2.0 – Signatures

Titan Salvage Project Manager

Date: _____

Salvage Master

Date: _____

Site Safety Officer

Date: _____

Appendix B

Biological Assessments

New Carissa Wreck Removal Project

NMFS Biological Assessment

November, 2007



Prepared for:

Titan Maritime, LLC

410 SW 4th Terrace, Dania, Florida 33004



Prepared by:

HDR Engineering, Inc.

1001 SW Fifth Ave, Suite 1800, Portland, Oregon 97204



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Appendix B – Oil Spill Response Plan

Appendix C – M/V New Carissa – Stern Section Wreck Removal and Disposal Plan

Appendix D – Project Plans

Appendix E – Photos

Acronyms and Abbreviations

BLM	Bureau of Land Management
BMP	Best Management Practices
Corps	Army Corps of Engineers
DSL	Oregon Department of State Lands
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
LLC	Limited Liability Corporation
MMPA	Marine Mammal Protection Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OAR	Oregon Administrative Rule
ODFW	Oregon Department of Fish and Wildlife
OSRP	Oil Spill Response Plan
OPRD	Oregon Parks and Recreation Department
ORNHIC	Oregon Natural Heritage Information Center
Titan	Titan Maritime, LLC

Executive Summary

Project Description

The proposed project involves removing the stern section of the New Carissa wreckage, which ran aground in 1999 on the Oregon Coast near Coos Bay. The bow portion of the wreckage was removed in 1999. The project's proponent is Titan Maritime, LLC, who was contracted by the Oregon Department of State Lands as the prime consultant responsible for project design and implementation.

Stern removal activities will occur on the beach, the foredune, and in the Pacific Ocean in Coos County, Oregon. All activities will occur on publicly owned lands.

Project Elements

- **Staging area and equipment setup.** Two jackup barges will be positioned around the stern section of the New Carissa. A construction transporter will be constructed on the foredune area to transport equipment and crew to the jackup barges during wreck removal activities. Initial setup will remove approximately 7,145 square feet of grasses and approximately 2,382 square feet of shrubs. Grading will occur on the foredune to create level ground for construction. All equipment will be removed following wreck removal activities, and graded areas will be restored to existing contours.
- **Wreck removal.** The New Carissa stern section will be dismantled in situ using exothermic steel cutting techniques, and removed fragments will be lifted by a crane mounted on one jackup barge, and placed on the other barge. The submerged portion of the stern section will be removed using hydraulic pullers. Removed scrap materials will be transported offsite by barge to an appropriate disposal facility. Although no oil is recorded to occur onboard the stern section of the wreck, the potential for a spill exists during dismantling and removal activities. An Oil Spill Response Plan has been prepared detailing the management of any contaminants that may leave the vessel.

Listed Species and Effect

Species listed on the federal list of endangered fish and marine mammals that may occur in the vicinity of the proposed project include Oregon Coastal Coho and Steller sea lion. The proposed project *may affect* and is *not likely to adversely affect* Oregon Coast Coho or Steller sea lion. The proposed project will have *no effect* on other ESA-listed marine mammals.

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1.0 Introduction

1.1 Background

This Biological Assessment addresses the effects of the New Carissa Wreck Removal Project on fish and wildlife species listed, or proposed, as threatened or endangered under the Federal Endangered Species Act of 1973 (ESA). Impacts to federal waters (regulated by the United States Army Corps of Engineers [Corps]) and the need for a Corps Nationwide Permit under Action No. 22 (removal of vessels), constitute the Federal nexus triggering this assessment. The Oregon Department of State Lands (DSL) is the property owner hired Titan (project proponent) as the prime consultant responsible for project design and implementation. This Assessment addresses impacts to species listed under the authority of the National Marine Fisheries Service (NMFS).

In 1999, the Panamanian-flagged ship New Carissa ran aground on the Oregon Coast near Coos Bay while anchored during a winter storm. Attempts to immediately free the stranded 640-foot-long freighter failed, and the New Carissa suffered major structural damage while grounded on the tidal zone for nearly a week. No longer a seaworthy vessel, the Coast Guard intentionally ignited 200,000 gallons of crude oil aboard the ship, in an effort to minimize the environmental consequences of an oil spill. The burning of the fuel caused the ship to separate into two pieces, divided between the bow and stern. The larger bow section was successfully removed from the beach, and towed approximately 250 miles from the coastline and scuttled into the Pacific Ocean in March of 1999. The 1200-ton stern section remains today, nine years later, deeply entrenched in sand in the tidal zone on the North Spit of Coos Bay (Photo 1 in Appendix E). The Coast Guard believes that small amounts of residual oil remain in the ship wreckage, but it is a negligible risk to the environment (see Appendix A). No asbestos is expected on board the wreckage since the New Carissa was built after asbestos was deemed unsuitable for vessels. In addition, no paint remains on the outside of the ship and it is unlikely that paint containing lead or tributyltin occurs inside the ship.

In 2002, a Coos County Court found the New Carissa owner, Green Atlas Shipping Company, negligent for trespassing and responsible for the removal and clean up of the New Carissa ship wreckage. This court settlement transferred legal liability of the wreck from the owner to the State of Oregon along with a \$22 million fund to pay for the removal of the New Carissa. The State of Oregon has overall jurisdiction over the New Carissa because the wreck lies in the tidal zone administered by DSL. Recognizing the safety and legal liability concerns, removal of the New Carissa wreckage is a priority for the Oregon governor and the State Land Board.

The New Carissa wreckage is located in the Pacific Ocean stranded on public land on the North Spit of Coos Bay, approximately 3 miles north from the mouth of Coos Bay, within Township 25 S, Range 14 W, Section 13.

See Figures 1 and 2 for the project location.

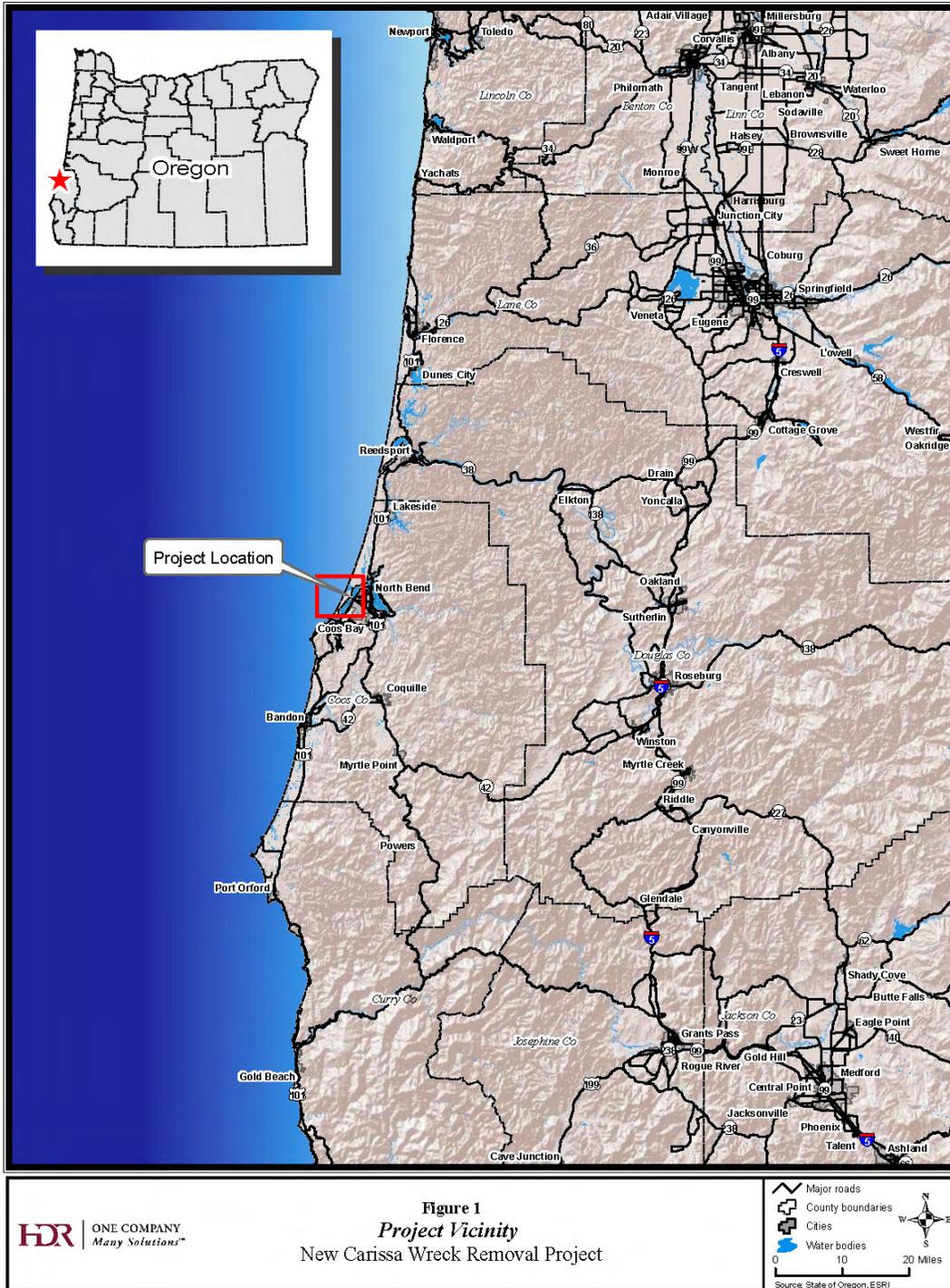


Figure 1: Project Vicinity



Figure 2: Project Location

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2.0 Proposed Action

2.1 Project Area

The project area includes a small staging area on the North Spit of Coos Bay and the Pacific Ocean. The North Spit is a six-mile-long, narrow sand spit that divides Coos Bay estuary from the Pacific Ocean. The North Spit is owned primarily by the Bureau of Land Management (BLM) with the southern tip administered by the Corps; the ocean shoreline is the property of the DSL. A section of the bay coast line is used by the Port of Coos Bay for industrial and commercial port activities (Figure 2). There is a system of 4-wheel-drive sand roads throughout the North Spit. See Appendix E for photos of the project area.

2.2 Project Description

The purpose of the proposed action is to remove the stern section of the New Carissa wreckage. The proposed work will be completed with temporary structures in the surf zone near the wreckage and on shore approximately 1,000 feet from the wreckage. Two jackup barges will flank the wreckage and serve as work platforms during the dismantling process. A shoreline staging area will be composed of a construction transporter, several office containers and storage containers, crane, parking area, and access road (Figure 3 and Appendix D).

The two jackup barges, each 170' x 80' x 13', will be floated near the wreck and then winched into place by a bulldozer on the beach. Once in place, each barge will be jacked up on six legs so the barge deck is at the same elevation as the wreckage, with a 30 to 40 foot gap between the water surface and the barge deck depending on tide conditions. Each leg is 71 inches in diameter and will likely be sunk 30 feet into the sand. The legs are designed to use high pressure water spray within and from the bottom of the legs to agitate the sand and sink under their own weight. Impact or vibratory pile driving may be used to place legs if this method does not work effectively. The jacking process does not use any lubricants that contain oils, grease, or other hydrocarbons.

The shoreline staging area will occupy an area of approximately 26,000 square feet located above the average high tide line, on the foredune. The purpose of this staging area is to provide onshore support for the in-water barges and the location for the construction transporter system. The construction transporter is an aerial tramway that will connect the shoreline staging area to the seaward work platform, providing safe and efficient transport of crew and materials. It will be composed of one primary shoreside tower within the staging area, one cable car, and a wire cable connecting to one of the barges (see schematic in Appendix D). The construction of the transporter support structures will require the use of an excavator and crane to bury two deadman anchors and raise the tower. Approximately 40 cubic yards of sand will be excavated to place the deadman anchors. The crane and excavator used to erect the construction transporter will remain within the staging area until the removal of the wreckage is complete, and then will be used to dismantle the structures (see Figure 3). A helicopter will be available during the project and will be used for transferring mooring lines between the beach and barges,

assembly of the construction transporter, emergency evacuation, and other specialized tasks. The helicopter may be used at any time during the wreck removal but use is anticipated to be infrequent.

The New Carissa stern section will be demolished using exothermic steel cutting techniques. Fragments of the wreckage will be hoisted by barge-mounted crane and placed on a jackup barge. The submerged portion of the stern section will be removed using multiple 300-ton hydraulic pullers. Wreckage scrap materials will be barged to an appropriate disposal facility. No scrap material will be transferred to the staging area.

The responsibility and liability of project related pollution is divided between DSL and Titan. As legal owner of the New Carissa, DSL is responsible for any contamination emanating from the wreckage, even during the demolition and storage of wreckage materials on the jackup barges. As contractor, Titan is responsible for hazardous materials from equipment and jackup barges used for the wreckage removal. Together, DSL and Titan developed a joint Oil Spill Response Plan (OSRP) to address any contaminants from the project cooperatively, but legal liability for pollution will be distinct. See Appendix B for the OSRP.

2.3 Wreck Removal Schedule and Timing

The schedule of the New Carissa Wreck Removal is dependent on mobilization of the jackup barges. The jackup barges must be transported from their home port in Florida through the Panama Canal to the wreckage site. Once on site, the barges must be placed into position during periods of calm weather. The summer work period was chosen due to the typically calm seas. The proposed in-water and on-shore work is scheduled to take approximately three months to complete. The staging area will be constructed prior to the arrival and positioning of the barges. The following table provides the proposed wreck removal schedule, although many tasks listed are weather-dependant and are subject to change.

Table 1: Schedule of operations to remove the New Carissa wreckage in 2008

Month	Task	Days to Complete Task
1 February to 15 April	Mobilization of jackup barges, from US Gulf to Coos Bay	60
15 April to 15 May	Preparation of shoreline staging area	30
1 June	Jackup barges in location at wreck site	3
3 June to 31 August	Stern section removal	90
September	Demobilization	10
September	Restoration of staging area	7

Table source: M/V New Carissa – Stern Section Wreck Removal and Disposal Plan (Appendix D)

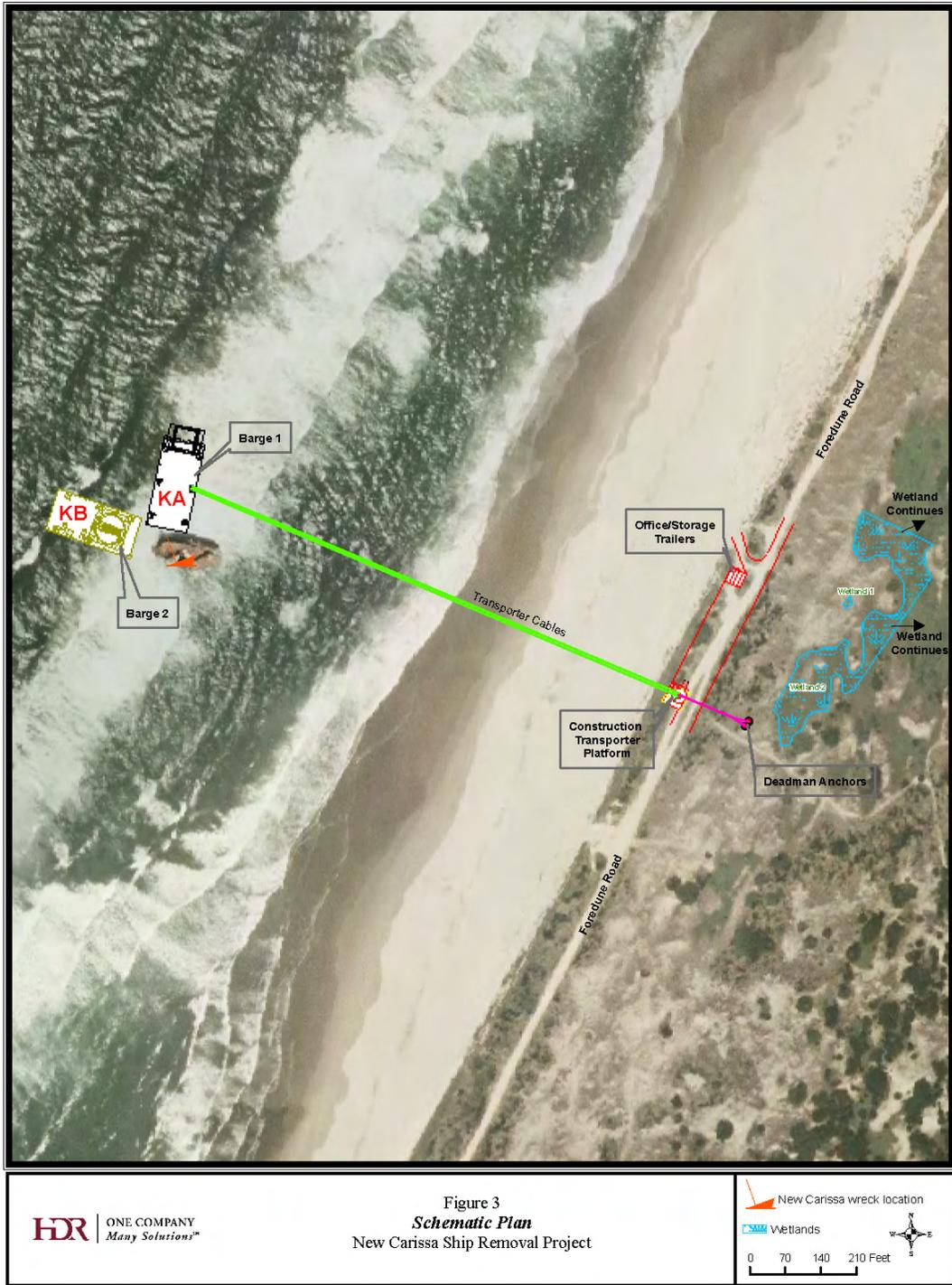


Figure 3: Schematic Plan

2.4 Summary of Project Impacts

- **Project Footprint:** The project area, including shoreline staging and in-water work will temporarily occupy the following areas:
 - ◆ 149,500 square foot total footprint
 - 26,000 square foot grading area for the construction transporter and staging.
 - 27,500 square feet for the deck area of two jack-up barges.
 - 71,500 square feet for the area potentially used by the bulldozer during positioning of the jackup barges.
 - 21,500 square feet for the construction transporter cable.
 - 3,000 square feet for the deadman anchors and cables.
- **Temporary Amount of Soil Fill/Removal**
 - ◆ Grading will be required at the construction transporter and staging area to level the area currently occupied by Foredune Road and portions of the foredune. Soil movement will also be required to bury the deadman anchors. No imported soil will be required for these activities, nor will native soils be transported offsite. Following construction, these areas will be regraded and restored to existing contours.
 - ◆ Approximately 528 cubic yards of sand will be displaced by the supporting legs of the jackup barges.
- **Wetland Impacts**
 - ◆ None
- **Other**
 - ◆ Four pilings used to support the construction transporter in the foredune will be placed and removed using vibratory pile driving methods.
 - ◆ Temporary impacts to the beach will be incurred as a result of the use of a bulldozer to position the seaward barges. It will occur over a few days and will require the bulldozer to drive across open sand from the staging area.

3.0 Species Occurrence

3.1 Coho (*Oncorhynchus kisutch*)

ESU: Oregon Coastal
Federal Status: Proposed Threatened
Critical Habitat: Proposed

The Oregon Coastal coho were listed as threatened in 1995, but were delisted in January 2006. The Oregon Coastal coho evolutionarily significant unit (ESU) includes all naturally reproducing populations in coastal streams south of the Columbia River and North of Cape Blanco. This coho population may be relisted in the future depending on population trends and future research (NMFS, 2007b); therefore, for the purposes of this Biological Assessment, Oregon Coastal coho will be considered as ESA-listed species.

Biological information for Oregon Coast coho salmon can be found in species status assessments by the National marine Fisheries Service (NMFS) (Weitkamp et al., 1995; NMFS, 1997a) and by Oregon Department of Fish and Wildlife (Nickelson et al., 1992; ODFW, 2005), and in species life history summaries by Laufle et al., 1986; Emmett et al., 1991; and Sandercock, 1991, and by Federal Register documents (60 FR 38011, July 25, 1995; 62 FR 24588, May 6, 1997).

Once coho reach the ocean as juveniles, they migrate hundreds of miles off shore to feed, and greatly increasing in size. Despite the copious research on freshwater salmon biology, the understanding of coho behavior in marine environments is extremely limited (Percy, 1992). Coho may likely occur in the project area and Weitkamp and Neely (2002) suggest that coho populations from the central Oregon coast tend to migrate northward. The mouth of Coos Bay is located two miles south of the project area, and coho may occur within the project area as juveniles or adults migrating to and from Coos Bay, although the surf area is not considered to be preferred marine habitat of coho.

3.1.1 Coho Critical Habitat

As a proposed listed species, the critical habitat for Oregon Coastal coho has yet to be determined. However, future critical habitat will likely include the habitat described in the previous critical habitat designation for the Oregon Coastal coho ESU in 1999 (NMFS, 2007b). The proposed critical habitat for Oregon Coastal coho will likely include all coastal streams south of the Columbia River and north of Cape Blanco, including estuaries. Previous critical habitat designation focused on the use of freshwater habitats that are essential for the survival of the ESU. NMFS recognizes that marine (i.e., near-shore) habitats are “vital for the species,” but did not include marine habitats in the 1999 critical habitat designation (May 10, 1999, 50 FR 226). The project area is therefore not located in critical habitat for Oregon Coastal coho that may be included in future species listing.

3.2 Steller Sea Lions (*Eumetopias jubatus*)

Federal Status: Threatened

Critical Habitat: Yes

Steller sea lions are found across the Pacific Rim, from Japan to California. Given their wide distribution, Steller sea lions are classified into two distinct population groups divided along the 140° west longitude: Western, listed as endangered; and eastern, listed as threatened (see 62 FR 24345 and 55 FR 45209). In addition to the ESA listing, Steller sea lions are protected under the Marine Mammal Protection Act (MMPA), which prohibits the killing, harming, or harassing of any marine mammal (see Section 10 for more information on the MMPA). The greatest concentration of Steller sea lions in the eastern populations are found in the Gulf of Alaska and Aleutian Islands, but Oregon represents the second largest breeding site beyond Alaska.

Steller sea lions spend most of their time in the water hunting between the intertidal zone and the continent shelf. Their diets mostly consist of a variety of fishes, invertebrates, and other pinnipeds. The terrestrial habitats preferred by Steller sea lions include remote islands, rocks, reefs, and beaches. Terrestrial sites are selected based on proximity to food sources, protection from terrestrial and marine predators, topography, and surf conditions. Females choose birthing areas (known as rookeries) that are gently sloping and protected from waves; they will frequently return to the same pupping site in successive years (NMFS, 1992). Pupping occurs from late April to early June, and pups spend normally two weeks on land before spending increasing amounts of time in the water adjacent to the rookery (NMFS, 1992). During pupping season, the foraging range of females is restricted to shallow waters within 20 nautical miles of the rookery due to the need to nurse pups (August 27 1993, 58 FR 45269). Steller sea lions are considered to be nonmigratory and will generally forage near rookeries and haul-out sites; some juveniles and male Steller sea lions may migrate outside of their typical area between breeding seasons.

Steller sea lions are known to appear in areas near the project location; a rookery is located seven miles to the south (ODFW, 2007). The sandy beach surrounding the project location is not the preferred habitat of Steller sea lions; they typically haul-out on isolated rocky areas. The Oregon Department of Fish and Wildlife (ODFW) indicate that sightings of any seals or sea lions are rare on the North Spit.

3.2.1 Steller Sea Lion Critical Habitat

Critical habitat for Steller sea lions was designated on September 27, 1993 and includes (in Oregon) an air and aquatic zone that extends 3,000 feet from any historically occupied sea lion rookery (August 27, 1993, 58 FR 622). (See Figure 4.) This includes Simpson Reef near the Cape Arago State Park, south of Coos Bay (ODFW, 2007). Haul-outs in Oregon are not considered critical habitat (August 27, 1993, 58 FR 622).

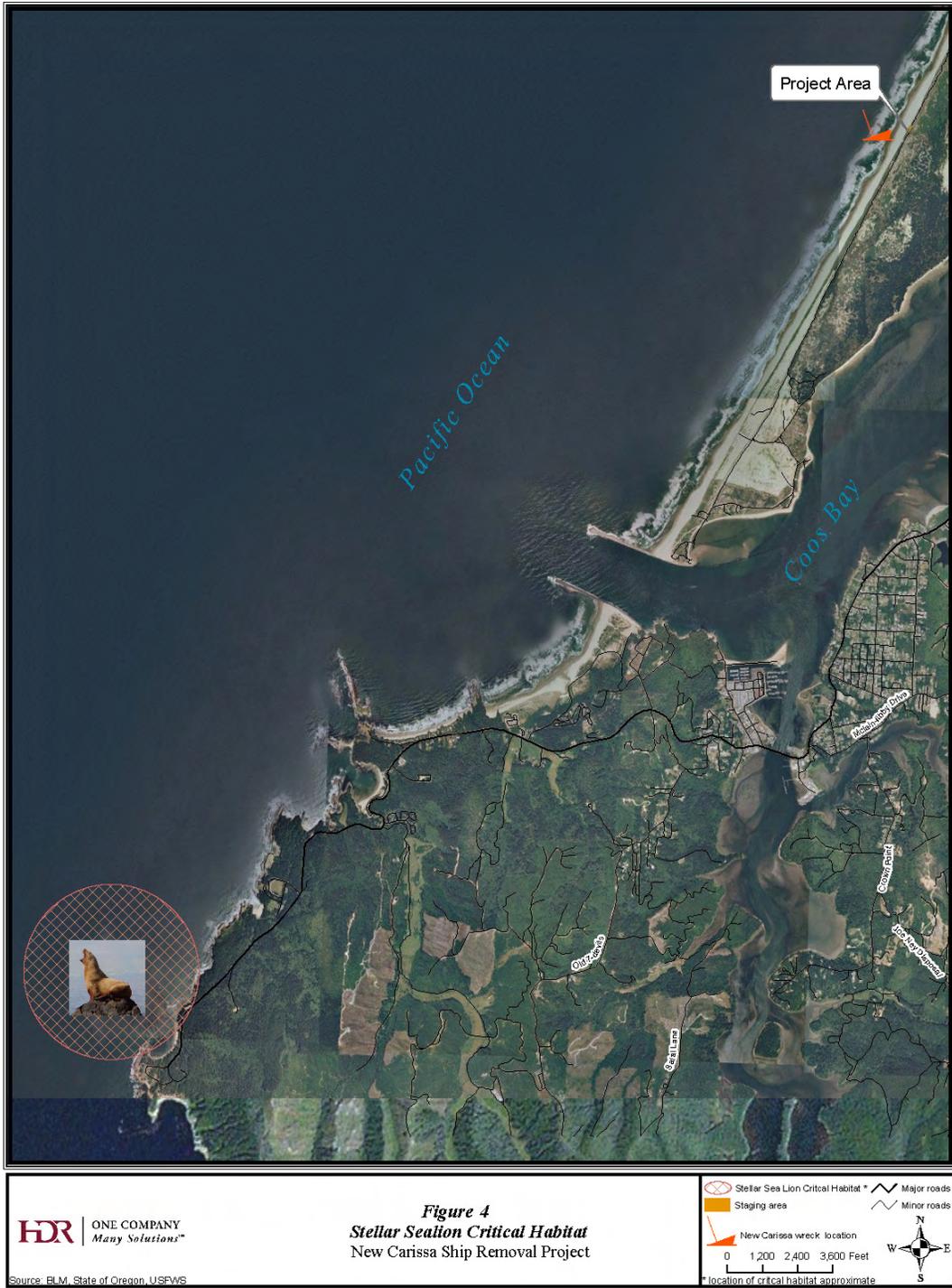


Figure 4: Stellar Sea Lion Critical Habitat

3.3 Other Listed Marine Species

The following section provides details on other ESA listed marine species that will not occur within or near the project area. There will be no adverse direct or indirect effects to any of these species from the proposed actions.

3.3.1 Blue Whale (*Balaenoptera musculus*)

The range of the blue whale is known to encompass much of the North Pacific Ocean, from Kamchatka to southern Japan in the west, and from the Gulf of Alaska and California south to at least Costa Rica in the east. The blue whale is not known to move through inland coastal waters of Oregon based on the information provided in the Recovery Plan for the Blue Whale (Reeves et al., 1998b). The blue whale does not migrate or inhabit waters that will be affected by wreckage removal activities.

3.3.2 Finback Whale (*Balaenoptera physalus*)

The migratory behavior of finback whales in the eastern North Pacific is complex. The finback whales can appear in any given season at many different latitudes (Reeves et al., 1998a). Finback whales have been observed in the summer off of the Oregon coast; however, fin whales do not travel near shore (Reeves et al., 1998a; Green et al., 1992). Finback whales do not inhabit near shore areas that will be affected by wreckage removal activities.

3.3.3 Northern Right Whale (*Eubalaena glacialis*)

The northern right whale is the world's most endangered large whale. Only a few hundred individuals are estimated to exist (NMFS, 1991a). Right whales live over the continental shelf areas of the Pacific Ocean. In the summer, they may be nomadic, temporarily aggregating in areas with abundant food sources (NMFS, 1991a). Sightings of right whales during winter months have been made off the coast of Washington, Oregon, California, Baja California, and near the Hawaiian Islands (Scarff, 1986). Sightings have occurred approximately 4 to 8 miles offshore of Catalina Island (in California). There are no known wintering areas off the North American Pacific coastline (NMFS, 1991a). Right whales do not travel close enough to shore to be affected by wreckage removal activities.

3.3.4 Humpback Whale (*Megaptera novaengliae*)

The humpback whale is distributed worldwide in all ocean basins. Humpback whales generally inhabit waters over continental shelves, along their edges, and around some oceanic islands (Whitehead, 1987; Balcomb and Nichols, 1978). Humpback whales are typically found in waters at least 500 feet deep. Most humpback whales migrate considerable distances to high latitude summering areas. Summer ranges are often relatively close to shore, including major coastal embayments and channels. Sightings of humpback whales along the coast of Oregon occur less frequently than sightings in Central California and Southeast Alaska and it is unclear whether the whales use these waters for purposes other than migration (NMFS, 1991b). Historically, humpback whales

were hunted off the coast of Oregon (usually from April through October) (NMFS, 1991b). No wreckage removal activities will affect the humpback whale due to the depth they require (i.e., humpback whales do not travel close to shore).

3.3.5 Sperm Whale (*Physeter macrocephalus*)

The sperm whale is one of the most widely distributed marine mammals (Rice, 1989). In the North Pacific, the northernmost distribution boundary extends from Cape Navarin to the Pribilof Islands (Omura, 1955). Females and young sperm whales usually remain in tropical and temperate waters year-round, while males are thought to move north in the summer to feed in the Gulf of Alaska, Bering Sea, and waters around the Aleutian Islands. Tag data from the days of commercial whaling revealed a great deal of east-west movement between Alaskan waters and the western North Pacific (Japan and the Bonin Islands), with little evidence of north-south movement in the eastern North Pacific (NMFS, 1998). The seasonal movement of sperm whales in the North Pacific is not understood (NMFS, 1998). Sperm whales are naturally rare in Oregon; therefore, it is unlikely they would be affected by wreckage removal activities.

3.3.6 Loggerhead Sea Turtle (*Caretta caretta*)

Most known loggerhead sea turtle sightings are in southern California (Stimson 1984; Guess, 1981a; Guess, 1981b), with a few sightings in Grays Harbor, Washington (Hodge, 1982) and Alaska (Bane, 1992). No additional sightings are known. With the exception of four records from Hawaii, U.S. Pacific sightings are confined to the west coast of the continent (NMFS and USFWS, 1998a). It is not known whether these individuals are resident or transient. The major nesting grounds for the loggerhead sea turtle are generally located in warm temperate and subtropical regions, with some scattered nesting in the tropics. There are no known nesting locations along the west coast of the United States (NMFS and USFWS, 1998a). Because nesting is not documented in the U.S. Pacific, the conclusion has been made that U.S. waters (principally those off of the California coastline) are used as foraging grounds and as migratory corridors. Sightings are typically confined to the summer months in the eastern Pacific, peaking from July through September off southern California and southwestern Baja California, Mexico (Ramirez-Cruz et al., 1991; Stimson, 1984). The loggerhead sea turtle is a rare occurrence in Oregon; therefore, it would not be affected by wreckage removal activities.

3.3.7 Green Sea Turtle (*Chelonia mydas*)

The green sea turtle is a circumglobal species found in tropical seas and to a lesser extent in subtropical waters (NMFS and USFWS, 1998b). The U.S. west coast has no known nesting sites for green sea turtles (NMFS and USFWS, 1998b). The green sea turtle is naturally rare in Oregon; therefore, it is unlikely to be affected by wreckage removal activities.

3.3.8 Leatherback Sea Turtle (*Dermochelys coriacea*)

The leatherback sea turtle is found worldwide (NMFS and USFWS, 1998c). Adult leatherback sea turtles exhibit broad thermal tolerances and are reported in the Pacific

Ocean as far north as Alaska and the Bering Sea, and as far south as Chile and New Zealand (NMFS and USFWS, 1998c). The leatherback sea turtle has been known to inhabit waters within 30 miles of the shore. No nesting of the leatherback sea turtle occurs on beaches under U.S. jurisdiction (NMFS and USFWS, 1998c). The leatherback sea turtle is naturally rare in Oregon; therefore, it is unlikely to be affected by wreckage removal activities.

3.3.9 Olive Ridley Sea Turtle (*Lepidochelys olivacea*)

The preferred nesting areas for the Olive (Pacific) Ridley sea turtle occur along continental margins and to a lesser extent on oceanic islands. No known nesting by the Olive Ridley sea turtle occurs in the United States or in any territory under U.S. jurisdiction (NMFS and USFWS, 1998d). The Olive (Pacific) Ridley sea turtle is naturally rare in Oregon; therefore, it is unlikely it would be affected by wreckage removal activities.

4.0 Baseline Conditions

This project occurs in the Pacific Ocean and the adjacent beach of the North Spit of Coos Bay.

4.1 Pacific Ocean

The subtidal area of the Pacific Ocean off the North Spit is a shallow sandy section of the Continental shelf. The depth of the water near the wreckage is approximately 10 to 20 feet, but water depth varies with tidal conditions. Commercial fisheries, shipping vessels, and recreational boaters use the ocean environment near the project site.

4.2 North Spit

The North Spit is a sandy, vegetated area separating the waters of Coos Bay from the Pacific Ocean. The spit is located northwest and west of the communities of Coos Bay, North Bend, and Charleston, Coos County, Oregon (Figure 2). The project area consists of sandy beach, foredune dominated by European Beach grass and Scotch broom, and disturbed roadway.

The North Spit is comprised of narrow, sandy beaches on the Pacific Ocean side and a combination of sand dunes and beaches, mudflats, and salt marshes on the bayside. The interior of the spit is characterized by stabilized and shifting sand dunes, fresh water wetlands, and upland stands of shore pine and Sitka spruce. Nonnative European beach grass and Scotch broom are the predominate species in much of the deflation plain. The establishment of these plants has altered the historic geologic processes by replacing shifting sand dunes with vegetated deflation plains bounded by steep beach grass-dominated foredunes that greatly influence the size and location of open sandy beaches. It should also be noted the foredune was originally constructed as a railway that served the construction of the north jetty. A part of that construction involved the use of European beach grass to stabilize fill embankments.

BLM owns and maintains 1,864 acres of land on the North Spit. The Corps manages 245 acres on the southern end and their primary mission is to maintain the north jetty for commercial use at the entrance to Coos Bay. The Oregon Parks and Recreation Department (OPRD) manages the Pacific Ocean beaches below the high tide line. DSL manages lands below the mean low tide, including submersed lands. The primary access to the bayside of the North Spit is currently through lands owned by the Port of Coos Bay. Current access to the beach area is via South Dike Road and Fore dune Road.

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5.0 Action Area

An action area is defined as all areas to be affected directly or indirectly by the proposed project and not merely the immediate area involved in the action. This provides a geographic limit for addressing the likely effects of a project on the listed species and its habitat. The action area includes all areas that could be directly or indirectly affected by the proposed project, and is not limited to the areas of wreck removal (see Figure 5).

5.1 Marine Habitat

The New Carissa wreck is located in the tidal area of the Pacific Ocean in a water depth approximately 10 to 20 feet and embedded in wave-agitated sand substrate of the continental shelf. The marine habitat portion of the action area includes the wreckage itself and the extent of the jackup barges when the legs are deployed and embedded in the sand. With no recorded potential quantity of oil or other hazardous substances onboard the New Carissa, quantification of the extent of impacts resulting from a potential oil spill is infeasible. As a conservative assumption, the area possibly affected by a potential oil spill was determined to encompass an area extending 1.0 mile west of the wreckage, approximately 3.2 miles south to the southern end of North Spit, and an equal distance north from the wreckage (approximately 3.2 miles). This distance was selected based on possible wave action and tidal flows at the project and the limited amount of oil expected to be present on the wreckage based on the Unified Command Decision Memo released by the Coast Guard (see Appendix A).

5.2 Terrestrial Habitat

Based on project details and expected noise and disturbance factors, the terrestrial action area includes the project footprint and an area within one mile around the footprint. The threshold for noise disturbance for marine mammals is typically 0.3 miles (CalTrans, 2001); therefore, the action for this project is a conservative estimate and no noise disturbance is expected beyond one mile from the project area.

6.0 Effects of the Proposed Action on Listed Species and Designated Critical Habitat

The following section describes the range of impacts that could result from the activities related to the removal of the New Carissa wreckage. The impacts of the project will be temporary, and a long-term beneficial effect will occur with the removal of the ship wreckage. The proposed project is not located within critical habitat for coho or Steller sea lions, and the presence these species in the action area is not anticipated. This section addresses only possible impacts due to the proposed action.

6.1 Coho

6.1.1 Water Quality

Temporary water quality impacts can result from contaminant introduction and turbidity increases from the proposed project.

A spill of residual oil or other hazardous materials from the remaining portion of the New Carissa or the salvage equipment is not anticipated. In fact, the Coast Guard believes no oil remains in the vessel (Appendix A). However, the possibility of remnant oil remaining onboard poses a potential threat to fish and wildlife, and, if it exists, the wreck removal may result in a release of this oil. Also, the barges will contain hazardous materials used in the wreck removal process, including diesel fuel.

The release of oil or other chemicals into the water could have detrimental effects to fish. In the unlikely event of an oil or chemical spill, direct mortality of coho may result, depending on the contaminant concentrations. Chemical contamination can alter fecundity and fertility levels, increase disease, shift biotic communities, and reduce the overall health of migrating salmon. The presence of coho in the surf area near the project location is unlikely; therefore their exposure to possible direct and indirect effects from contamination is negligible. Plus, the wave action and mixing currents of ocean will likely diminish the concentration of spills. Titan will prevent and clean up any oil spill related to the project as described in the Oil Spill Response Plan (Appendix B).

The placement of the 12 legs supporting the barges will stir the sand substrate and increase local turbidity. Presumably, waves will quickly mix the suspended sediment, resulting in little increase in sustained turbidity. The disruption of the sands near the wreck may release toxic compounds present in the sediment, which may directly impact coho.

Coho are sensitive to water quality and the introduction of turbidity and fine sediments can reduce prey detection, alter trophic levels, reduce oxygen along the substrate, and damage gills, as well cause other deleterious effects.

6.1.2 Fish Entrapment

Portions of the stern section of the New Carissa are flooded with seawater and may be colonized by fish. The actions to remove the wreck could inadvertently trap fish. Entrapment is unlikely as the wreck will be cut into sections before being lifted from the water. Seawater will be pumped within and to the bottom of the supporting legs of the jackup barges to sink the legs into the sand. All water intakes use screens that meet NMFS criteria (1/4 inch mesh) to prevent fish entrapment.

6.1.3 Overwater Structures

The two temporary work barges may change the ambient light conditions and altering wave and current regimes (NMFS, 2003). The barges will create shading, which will reduce the light levels below the structure. Impacts to aquatic vegetation from diminished lighting will be negligible, since there is little vegetation present in wave agitated sands substrate near the wreckage. In addition, the barge shading may alter the visual cues that coho rely on for spatial orientation, prey capture, schooling, predator avoidance, and migration (NMFS, 2003). The anticipated impacts will be negligible because the barges will be jacked approximately 30 to 40 feet from the surface of the water, which will provide ample lighting underneath. The impact will be temporary and will not last more than 90 days.

The jackup barges will be supported on 12 legs, which will likely not alter the wave and current regime of the project area. Removal of the wreckage from the subtidal zone will restore the project area to the natural oceanic processes, such as littoral drift, a key factor in the formation of the North Spit.

6.1.4 Coho Critical Habitat

The proposed critical habitat for coho is not located within the project action area and no direct impacts to the habitat are anticipated from the project. The project area is more than two miles north of the mouth of Coos Bay, which is a proposed critical habitat estuary, and indirect impacts to fish migrating toward this critical habitat may occur but will not impact the critical habitat itself.

6.2 Steller Sea Lion

6.2.1 Pollution, Contaminants, and Entanglement in Debris

The proposed project has the potential to release pollutants into the ocean and could directly expose Steller sea lions to contaminants. There are no published reports of contaminants or pollutants representing a mortality source for Steller sea lions (NMFS, 2007). Research on other pinnipeds, however, concludes that contamination can cause acute mortality, reduced pregnancy rates, immuno-suppression, and reduced survival of first born pups (NMFS, 2007). If any residual oil remains aboard the wreckage, it is likely only present in small amounts and poses only a negligible risk to the environment (Appendix A). Efforts to prevent hazardous substances from entering the marine environment will be implemented.

Because of the extensive work over and in the water for the removal of the wreckage, project-related debris could potentially enter the ocean. Such debris can be lethal to sea lions if entangled. Entanglement can be especially hazardous to sea lions when the debris is not degradable, such as plastics (NMFS, 2007). Appropriate containment of all over-water work areas will be required to minimize the potential for debris entering surface waters.

In conclusion, there will be only a negligible risk related to pollution for Steller sea lions from the proposed project given the minimal amount of residual oil onboard the wreck and measures to prevent and control project related contamination combined with the unlikelihood of sea lion presence in the project area.

6.2.2 Project-Related Disturbance

The activities related to the proposed project may create noise greater than the ambient noise of the waves. In particular, excessive noise will be created when pilings to support the construction transporter in the shoreline staging area are placed using a vibratory driver and when the helicopter transfers mooring lines from the barge to the shore during initial placement of the barges. These notable events will be limited to a few days at the beginning of the project. The main sources of noise disturbance during wreck removal include operation of the barge-mounted crane and hydraulic pullers. These activities may create noise that can disturb sea lions but will not last longer than 90 days.

Visual disturbance due to human activity can adversely affect marine mammals; however, there is no documented visual disturbance threshold for marine mammals. The project area is located approximately seven miles from a sea lion rookery and is not within line of sight of known sea lion haul-outs. Wreck removal activities may occasionally interfere with the sea lion activity while in the water near the project site and this visual disturbance may reduce foraging success.

Once the construction transporter and jackup barges are in place, a 24-hour work schedule is anticipated. Illumination to assist workers will be required in the form of spot lighting at the construction transporter and the barges. The lighting will be directed at the work area and will not likely illuminate the nearby marine environment to the extent that it would influence the behavior of sea lions.

In conclusion, the proposed action will result in negligible exposure to project related disturbance given the unlikelihood of the presence of Steller sea lions in the project area and conservation measures designed to alter work schedule if sea lions are observed near the wreckage.

6.2.3 Reduced Prey Availability

The primary factor limiting Steller sea lion populations throughout their range is the decrease in available prey from commercial fishing (NMFS, 2007). This proposed project may result in the spatial and temporal redistribution of ground fish, a key portion of sea lion diet, but will not result in prey shortages that could lead to acute starvation or chronic prey depletions that could reduce fitness, increase offspring mortality, and

increase susceptibility to disease and predation. The project area is not located in preferred Steller sea lion foraging habitat, and any displacement of ground fish in the near shore area would be a negligible impact to Steller sea lions.

6.2.4 Steller Sea Lion Critical Habitat

The action area for the proposed project is located more than seven miles to the north of a sea lion rookery at Simpson Reef, near Cape Arago State Park. The proposed project activities will not impact or otherwise modify Steller sea lion critical habitat.

7.0 Minimization and Avoidance Measures

The project design incorporates measures to minimize and avoid impacts to fish and wildlife, and their critical habitat. These measures address water quality, containment of salvage materials, handling of hazardous materials, and disturbance of shoreline areas.

7.1 Project Design

Following are suggested measures to be incorporated into the project design to minimize or avoid impacts to fish and wildlife.

- Minimize the footprint of the shoreline staging area.
- Use the construction transporter to span the sandy beach area that could be used by marine mammals.
- Restrict public access within 100 yards of the project area to limit disturbance to shoreline area during project.
- Jackup barges will only be placed and removed during periods of calm weather.
- Maintain maximum feasible height of jackup barges from water surface.
- Regrade staging area to original contours.
- Screen all pump intakes with mesh no larger than 1/4 inch, following NMFS guidelines.

7.2 Pollution

In the event of a chemical contamination or oil spill, Titan will respond with measures described in the Oil Spill Response Plan (Appendix B). The following are general measures for preventing and controlling pollution.

- Prevent trash and food scraps from entering the action area. Secure refuse in covered receptacles and dispose of properly. Feeding wildlife, including gulls and crows, shall be prohibited.
- Store hazardous materials according to Coast Guard guidelines to prevent oil spills (see U.S.C. 1251 -1387 and Appendix B).

7.3 Steller Sea Lion Avoidance Measures

Noise generated during the project may disturb sea lions present in the area and activities will be delayed if marine mammals are observed near the project. There will be two different marine mammal buffer zones based on the anticipated noise levels of certain project activities. A 500-foot buffer around the wreckage or shoreline staging area will apply exclusively for pile driving, barge placement, and non-emergency helicopter use. A 50-foot buffer will apply for other wreck removal activities. If Steller sea lions or any other marine mammals are observed in the buffer zones prior to or during project work the noise-creating activities will be suspended until no marine mammals are observed

within the particular buffer zone for at least 15 minutes. Members of the Titan salvage crew will be trained in marine mammal identification.

Additional avoidance, minimization, and conservation measures may be agreed on by state and federal government representatives, as conditions of the resulting federal Letter of Concurrence or Biological Opinion. Failure to meet these conditions may have repercussions to the project. These measures will be incorporated into the contract document and will be treated as noncontractual obligations.

8.0 Conservation Measures

Conservation measures include methods to minimize impacts to natural resources during and after the removal of the stern section of the New Carissa. Conservation measures suggested for this project will follow standard best management practices (BMPs) and are summarized as follows:

Table 2: Conservation Measures for Shoreline Staging Area

Impact	Conservation Measures
Noise	<ul style="list-style-type: none"> • Temporary piling for construction transporter will be placed using vibratory driving methods • Helicopter will avoid sea lion rookeries and haul-outs
Visual	<ul style="list-style-type: none"> • Focus lighting on work areas
Contamination	<ul style="list-style-type: none"> • On-site contamination response equipment • Control project-related trash/debris • Prevent hazardous substances from reaching the aquatic or beach habitat, with proper containment

Table 3: Conservation Measures for Jackup Barges

Impact	Conservation Measures
Noise	<ul style="list-style-type: none"> • Helicopter will avoid sea lion rookeries and haul-outs
Visual	<ul style="list-style-type: none"> • Focus lighting on work areas
Water quality	<ul style="list-style-type: none"> • Maintain spill contingency plan • On-site containment equipment • Control project-related trash/debris • Prevent hazardous substances from reaching the aquatic or beach habitat, with proper containment • To prevent oil spills, provide proper containment of hazardous materials on the barges in accordance with comprehensive spill prevention and countermeasures plan developed for this project (December 11, 1973 38 FR 237). See Appendix B. • Treat any effluent water from the barge in accordance with Clean Water Act
Entrapment	<ul style="list-style-type: none"> • Drain scrap sections of seawater before loading to barge • Use NMFS-criteria screen on any water intake

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9.0 Finding of Effect

Table 4 presents a summary of recommended effect determinations for listed species regulated by NMFS known to occur in the action area. Rationale for each species follows.

Table 4: Summary of Determination of Effects on Species

Federally-Listed Species	Status	Determination of Effects
Oregon Coastal Coho	Proposed Threatened	<i>May affect – not likely to adversely affect</i>
Steller Sea Lion	Endangered	<i>May affect – not likely to adversely affect</i>

A summary of recommended effect determinations for all critical habitat known to occur within the action area is presented in Table 5. Rationale for effect determinations for critical habitat follows.

Table 5: Summary of Determination of Effects on Critical Habitat

Federally-Listed Species	Critical Habitat Present in the Action Area	Determination of Effects
Oregon Coastal Coho	No	<i>No Effect</i>
Steller Sea Lion	No	<i>No Effect</i>

9.1 Coho Salmon

9.1.1 Effect on Species

The proposed project **may affect, but is not likely to adversely affect** the coastal coho salmon. A *may affect* determination is warranted because:

- The marine portion of the ESU is known to occur within the coastal marine zone.
- The Coos Bay estuarine zone is nearly three miles of the project site.

A *not likely to adversely affect* determination is warranted because:

- The impacts related to oil or chemical spill are unlikely to occur.
- The project site is near shore and in shallow water (approximately 10 to 20 feet deep).
- Removal of the New Carissa wreckage will restore tidal habitat to historical condition.

9.1.2 Effect on Critical Habitat

The project will have *no effect* on designated critical habitat for Oregon Coast coho because proposed critical habitat is not present within the action area. The project will *not result in the destruction or adverse modification* of coho critical habitat.

9.2 Steller Sea Lion

9.2.1 Effect on Species

The proposed project **may affect, but is not likely to adversely affect** the Steller sea lion. A *may affect* determination is warranted because:

- A Steller sea lion rookery is located 7 miles from the project site.
- A helicopter will be available for the project; however, it will avoid flying over or near the stellar sea lion rookery or haul-out.

A *not likely to adversely affect* determination is warranted because:

- The project area is located in a sandy beach, which is not the preferred habitat of Steller sea lions.
- The adverse effects related to oil or chemical spill are unlikely to occur.
- The removal of the New Carissa wreckage will restore the tidal area to historical condition.

9.2.2 Effect on Critical Habitat

The project will have *no effect* on designated critical habitat for Steller sea lions because designated critical habitat is not present within the action area. The project will *not result in the destruction or adverse modification* of Steller sea lion critical habitat.

9.3 Request for Consultation

Due to this finding of effect, Titan is requesting initiation of informal consultation in accordance with Section 7 of the Endangered Species Act and the implementing regulations found in 50 CFR 402.14.

10.0 Marine Mammal Protection Act

10.1 Background

The Marine Mammal Protection Act of 1972 (MMPA) established a moratorium, with certain exceptions, on the taking of marine mammals in waters of the United States. The term “marine mammal” is defined as any mammal that is morphologically adapted to the marine environment, including sea otters and members of the orders Sirenia, Pinnipedia, and Cetacea. The term “take” is statutorily defined to mean “to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal.” Harass has been defined by Congress to mean “any act of pursuit, torment, or annoyance.” Harassment for the purposes of the MMPA is divided into two categories:

Level A Harassment – has the potential to injure a marine mammal or marine mammal stock in the wild.

Level B Harassment – has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

All marine mammals that appear in the coastal waters of Oregon are protected under the MMPA. In addition, the Steller sea lion (*Eumetopias jubatus*), sperm whale (*Physeter macrocephalus*), humpback whale (*Megaptera novaengliae*), northern right whale (*Eubalaena glacialis*), blue whale (*Balaenoptera musculus*), finback whale (*Balaenoptera physalus*), and sei whale (*Balaenoptera borealis*) are also protected under the ESA.

10.2 Distribution

Marine mammals primarily live in ocean waters, bays, and estuaries, but some species will forage inland in coastal streams and rivers. Whales are found almost exclusively in open sea aquatic habitats, whereas pinnipeds (such as seals and sea lions) require both aquatic and terrestrial habitats. Pinniped species regularly use land for haul-outs, and breed in remote rookery areas along the coast. Pinnipeds congregate during the pupping and breeding season in rookeries protected from disturbance and predators, such as isolated beaches, reefs, and rock islands (NMFS, 2003b). Pinnipeds also use haul-out areas to congregate throughout the year. These may include rocks, reefs, beaches, jetties, breakwaters, navigational aids, or floating docks. Several pinniped species are known to forage inland as they follow salmon runs and other prey species’ migrations up rivers.

10.3 Effects Pathways

Effects to marine mammals are delivered via the displacement, disruption, removal, or other alteration of effects pathways, including air, chemicals, or incidental take of the species (e.g., via direct physical injury). These impacts were previously discussed in for Steller sea lions and also apply to other marine mammals that may be located within the vicinity of the project area.

10.4 Conservation Measures

The avoidance and conservation measures for Steller sea lions described above will also apply to other marine mammals that may occur near the project area; no other measures are recommended.

10.5 Analysis of Effects

No activity associated with the New Carissa wreckage removal would cause Level A Harassment as defined by the MMPA, and those activities that could cause Level B Harassment will be avoided by the implementation of the conservation measures described above. The project will result in negligible Level B Harassment, and negligible incidental take of marine mammals.

11.0 Essential Fish Habitat

11.1 Background

The Magnuson-Stevens Fishery Conservation and Management Act includes a mandate that NMFS must identify essential fish habitat (EFH) for federally managed marine fishes, and federal agencies must consult with NMFS on all activities or proposed activities authorized, funded, or undertaken by the agency that may adversely affect EFH. The Pacific Fisheries Management Council (PFMC) has designated EFH for the Pacific salmon fishery, federally managed ground fishes, and coastal pelagic fisheries (NOAA Fisheries 1999; PFMC, 1999).

In estuarine and marine areas, the EFH designation for salmon extends from near-shore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone offshore of Washington, Oregon, and California north of Point Conception (PFMC, 1999).

The EFH designation for ground fishes and coastal pelagics is defined as those waters and substrate necessary to ensure the production needed to support a long-term sustainable fishery. The marine extent of ground fish and coastal pelagic EFH includes those waters from the near-shore and tidal submerged environment within Washington, Oregon, and California state territorial waters out to the exclusive economic zone (370.4 km [231.5 miles]) offshore between Canada and the Mexican border.

The west coast ground fish management unit includes 83 species that typically live on or near the bottom of the ocean. Species groups include skates and sharks, rockfishes, flatfishes, and ground fishes. Coastal pelagics are schooling fishes, not associated with the ocean bottom, that migrate in coastal waters. These fishes are primarily associated with the open ocean and coastal areas (PFMC, 1998).

11.2 Essential Fish Habitat Species

Located in the surf zone of the continental shelf, the fish habitat within the project area is comprised of shallow water depth (approximately 10 to 20 feet) and wave agitated sand substrates. Table 1 provides a summary of the likely fish present within or near the project area.

Table 1: Possible ground fish, pelagic, and salmonid fish species and life history use of ESH that may occur within the project area. X = The EFH for the particular species and life stage occurs within the project area. Blank = The EFH for the particular species is not know to occur within the project area, or there is insufficient evidence. NA = Not applicable

Species	Adult	Spawning	Eggs/ Parturition	Larvae	Juveniles
Ground fish					
California Skate	X	X	X	NA	X
Leopard Shark	X	X	X	NA	X
Soupin Shark	X	X	X	NA	X
Spiny Dogfish	X			NA	X
Spotted Ratfish	X	X	X	NA	X
Butter Sole	X	X			
Curlfin Sole	X	X			
English Sole	X	X			X
Pacific Sanddab	X	X			X
Petrale Sole	X				X
Rex Sole	X	X			X
Rock Sole	X	X	X		X
Starry Flounder	X	X			X
Black Rockfish	X				X
Bocaccio	X				X
Copper Rockfish					X
Quillback Rockfish					X
Cabezon	X	X			X
Lingcod	X				X
Pacific Cod				X	
Sable Fish	X				X
Pelagic Species					
Northern Anchovy	X	X			X
Jack Mackerel	X	X			X
Pacific Sardine	X	X			X
Pacific (Chub) Mackerel	X	X			X
Market Squid	X				
Salmonid Species					
Chinook Salmon	X				X
Coho Salmon	X				X

For a summary of life histories and habitat requirements for the species listed in Table 1 see the Appendix H of the Draft EIS for Essential Fish Habitat (NMFS, 2005)

11.3 Pathways to Effect Essential Fish Habitat

The proposed project will have limited adverse effects to ground fish, pelagic, or salmonid essential fish habitat. Because of the discrete area of possible impacts the following effect pathways apply to ground fish, pelagic, and salmonid essential fish habitat.

11.3.1 Project-Related Oil or Chemical Spill

Proposed wreckage removal work will require the use of machinery in the water and accidental release of diesel fuel, motor oil, hydraulic fluid, and other contaminants may occur during in-water work. The release of contaminants into the ocean environment may directly or indirectly impact EFH. All in-water operations will follow marine pollution standards set forth in Section 403 of the Clean Water Act. The introduction of oil or other chemicals from the wreckage removal operation is possible but not anticipated, and measures to limit exposure will be implemented (see Appendix B).

11.3.2 Residual Oil Spill

A spill of residual oil or other hazardous materials from the remaining portion of the New Carissa is not anticipated. In fact, the Coast Guard believes no oil remains in the wreckage (Appendix A). However, the possibility of remnant oil remaining onboard poses a potential threat to EFH, and, if it exists, the wreck removal may result in a release of this oil. Titan and DSL developed an emergency spill response plan to control and clean up any oil spill from the wreckage. The exposure of oil to essential fish habitat is not anticipated and comprehensive measures will be implemented to control any spill of residual oil. If the wreckage is not removed, residual contaminants may leach into EFH undetected. Therefore, the removal of wreckage, with proper spill contingency plans, will alleviate any potential concerns for contamination of EFH related to the New Carissa.

11.3.3 Turbidity

The disturbance of sand substrate from actions associated with wreck removal may result in temporary increases in local turbidity; although, the mixing of ocean currents in the surf zone will likely dissipate any suspended sediments. Turbidity may impact EFH by decreasing local dissolved oxygen or altering predator/prey relationships (PFMC, 1999). However, if such a change were to occur it is anticipated it would be short term and not appreciable, and likely below the normal variation usually attributed to a natural event (storm).

11.3.4 Fish Entrapment

Portions of the stern section of the New Carissa are flooded with seawater and may be colonized by fish. The actions to remove the wreck could inadvertently trap fish. However, entrapment is unlikely since the wreck will be cut into sections before being

lifted from water. Also, any water intake will be screened with a mesh size no larger than 1/4 of an inch.

11.3.5 Barge Effects

The two temporary work barges may adversely affect EFH by changing the ambient light conditions and altering wave and current regime (NOAA Fisheries, 2003). The barges will create shading that will reduce the light levels below the structure. There is little aquatic vegetation presence in the wave agitated sands near the wreck and impacts from diminished lighting will be negligible. The barge shading will alter the visual cues that fish rely on for spatial orientation, prey capture, schooling, predator avoidance, and migration (NOAA Fisheries, 2003). The anticipated impacts will be minimized since the barges will be jacked approximately 30- to 40-feet from the surface of the water, which will provide ample lighting underneath the barges. Also, the impact will be temporary and not last more than 90-days.

11.4 Conservation Measures

The following measures will be implemented to minimize the potential adverse effects to designated ESH described above.

- 1) Follow best management practices to prevent oil or chemicals from project activities from contamination ESH.
- 2) Develop a pollution response plan to control any spill of oil or other chemical from the ship wreck into the ESH (Appendix B).
- 3) Store spill response equipment on site.
- 4) Prevent project-related debris from entering aquatic habitat.
- 5) Use screen with openings no greater than 1/4 inch for any water intake.
- 6) Maintain maximum height of barge from water surface, as feasible.

11.5 Effects Determination

Based upon our review of the available information, and as summarized above, it is our conclusion that the proposed wreck removal activities may affect essential fish habitat or fish species regulated under the Magnuson-Stevens Fishery Conservation and Management Act. However, the project will not represent a substantial adverse, individual or cumulative threat.

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Appendix A
Unified Command
Decision Memo

Unified Command Decision Memo

February 1, 2000

Closure of Federal Removal Actions, Continued Operations under State Oversight

1. **This Decision Memo is a statement of the current positions and intended actions of each party.** It is written as an operational document, not a legal declaration. Each party stipulates that this is their operational position and a good faith commitment to ongoing actions, but reserves all rights under OPA 90 and other applicable laws. On some points, the parties agree to disagree.
2. **Federal On Scene Coordinator's comments:** National Oil and Hazardous Substances Pollution Contingency Plan (NCP) oil removal actions in response to the grounding of, and subsequent oil release from, the M/V NEW CARISSA are complete. Details of that determination and the rationale for it is contained in the FOSC decision memo dated 1 February 2000.
 - a. Future efforts to monitor the NEW CARISSA wreck would be based upon the pollution discharge threat posed by the wreck, taking into account the consequences of such a discharge. At present, the Coast Guard has no reason to believe that anything other than small amounts of oil are present on the vessel, with very small discharges posing a negligible risk of adverse impact to the environment, or to the public health or welfare. However, should these circumstances change, such as during wreck removal by destructive methods, the Coast Guard would re-evaluate the situation at that time.
 - b. The Coast Guard has, under the Ports and Waterways Safety Act, authority and responsibility to address navigation safety issues and related safe manning requirements created by further efforts to remove the remaining portions of the NEW CARISSA.
 - c. Although the Unified Command is officially disestablished as of the signing of this document, continued periodic communication is necessary and appropriate as conditions warrant to coordinate these activities.
3. **State On Scene Coordinator's comments:** The State of Oregon has determined that state statutes and interests remain in force and require continued monitoring and appropriate actions by the responsible party. State interests include environmental and non-environmental issues such as attractive nuisance and liability concerns; the long-term fate of the stern; monitoring of the condition

of the wreckage and beach and to identify releases of oil; appropriate remediation and wildlife response measures not being addressed under NRDA; recovery of state costs associated with the incident; and continuing coordination, communication, documentation, and legal aspects of the incident.

4. **Responsible Parties On Scene Coordinator's comments:** The Responsible Party has determined that continued monitoring and cooperation with the State on ongoing operational issues are appropriate and proper. As part of its reservation of all rights under OPA 90 and other applicable laws, set out above at paragraph 1, the RP confirms its advice to the Coast Guard and the State that the RP will continue to conduct appropriate removal actions under the NCP, 40 C.F.R. § 320(a)(3), when future discharges of oil from the wreck are of quantities which may be harmful under 33 U.S.C. §1321(b)(4), 40 C.F.R. §110.3.
5. The FOSC will no longer coordinate or oversee operations, unless the conditions or activities change such that the federal case must be re-opened. The SOSOC will continue to oversee activities by the responsible party required under state laws and coordinate the concerns of state and local agencies. The RP will continue to monitor, remediate, and report to the State as outlined in the current Incident Action Plan; continue the processing and payment of appropriate State costs unless or until notice otherwise is given; be responsive to ongoing State concerns; and conduct further analytical and other activities the RP determines are necessary.

J. D. SPITZER
Captain, USCG
FOSC

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Appendix B

Oil Spill Response Plan



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M/V NEW CARISSA

Stern Section Wreck Removal

Oil Spill Response Plan

Job: NEW CARISSA – wreck removal and delivery for disposal

Site: North Spit Beach Area
Coos Bay, Oregon

This plan is submitted as required by the Oregon Department of Environmental Quality (DEQ) Contractually, the Oregon Department of State Lands (DSL) and Titan are responsible under ORS 466.640 and ORS 465.645 to immediately clean up any release of hydrocarbons emanating from the wreck (DSL) or the jack-up barges KARLISSA A and KARLISSA B (Titan). This plan is submitted jointly by DSL and Titan and covers all contingencies regardless of the source of the hydrocarbons or which party is responsible. Any reference to Titan will imply the participation of DSL as well.

Risk Assessment

Previous contractors have attempted to remove all of the hydrocarbons from the stern section of the M/V NEW CARISSA. The U.S. Coast Guard (USCG) has stated that they have *“no reason to believe that anything other than small amounts of oil are present on the vessel, with very small discharges posing a negligible risk of adverse impact to the environment, or to the public health or welfare.”* The USCG also made comments they would re-evaluate their position should the circumstances change *“such as during wreck removal by destructive methods.”*

There has been no documented release of oil from the vessel since the termination of the last contractor’s operations. Titan has surveyed the wreck twice in the past two years and has seen no signs of hydrocarbons onboard, not even a light sheen.

Nonetheless, Titan does assume that some quantities of hydrocarbons remain onboard the wreck in the lower engine room compartments and that there is a risk that these hydrocarbons will be released into the local environment during what can only be defined as a wreck removal *“by destructive methods.”*

The level of risk will vary depending on the operations being undertaken. For example, there will be little risk of a hydrocarbon release during the removal of the upper structure. The greatest risk of a release will occur when the salvage team is making cuts through the lower section of the wreck where the residual oil is most likely to be found. Titan will evaluate the risk level daily for each operation being undertaken and mobilize assets necessary for the assumed risk as described below.

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Oil Spill Response Plan

Titan is committed to using our best endeavors to prevent or minimize any potential release of hydrocarbons throughout the operation. Titan has performed salvage and wreck removal operations throughout the world and has always been committed to doing everything practical to protect the environment. We have worked closely with organizations from various countries, none more demanding in this regard than the USCG.

There are two potential sources for hydrocarbon release during the project. The first is the jackup barges KARLISSA A and the KARLISSA B. The second is from the wreck itself.

The risk of a spill occurring from the jackup barges is relatively low. The barges will be engaged in normal operations. Each barge has an approved Shipboard Oil Pollution Emergency Plan (SOPEP). The SOPEP provides reporting requirements, steps to control discharges, proper disposal of recovered oil and cleanup materials etc. Titan's response to any release of hydrocarbons from either barge will follow the guidelines of the SOPEP.

Both barges will be carrying moderate amounts of diesel fuel and small amounts of lube oil and hydraulic oil. There will be portable equipment such as hydraulic power packs, winches, generators etc. employed on deck. All of this equipment will have its own spill containment basin. Titan will have designated salvage engineers on each shift to monitor and take preventative measures with equipment and plant machinery.

Each barge has an Emergency Oil Spill Kit required by their International Oil Pollution Prevention (IOPP) certificate. This kit includes:

- 1x Plastic Drum, 95gal w/ Screw Lid
- 20x Feet, Absorbent Boom, 4"; Bale
- 50x Absorbent Pad, 3/8"x 17"x 19", Bale
- 1x Absorbent Organic Particulate, 25lb Bag
- 1x 5gal Bucket, PLASTIC / NON SPARKING
- 1x Scoop; 3qt PLASTIC / NON SPARKING
- 4x Trash Bags, Heavy Duty w/ Ties
- 4x Tyvec Suits
- 4x Glove, Chemical Resistant
- 1x 3/4" Diaphragm Pump, Fuel Rated w/ CP Fittings
- 100x Feet 3/4" CP Hose

This minimum requirement will be enhanced by additional supplies of absorbent materials (pads, boom & particulate), shovels, buckets, trash bags, sand bags, PPE, dirty oil storage tank etc. as deemed necessary for the largest anticipated spill and the proposed duration of the project. Additional clean up gear can be brought aboard the barges as necessary. Soiled absorbents and other gear will be stowed in a proper container for proper disposal ashore according to current SOPEP guidelines and in accordance with local laws.

Any hydrocarbons released into the water from the jackups will be corralled using absorbent boom and cleaned up to the extent possible with absorbent pads. This will be done using Titan's 24 foot rigid-hull inflatable boat and/or jet skis which can be launched from the barges.

The risk of a spill will be heightened during the positioning of the barges alongside the wreck. This procedure will be planned in great detail. The barges will be carefully positioned using mooring winches with lines to offshore anchors and to the wreck itself. Additional lines will be run to bulldozers operating on the beach. The Barge Master will have the ability to move the barge in any direction necessary to position the barges in close proximity to the wreck. Yokohama fenders will be employed in areas where there is a potential for contact between the barges and the wreck itself. This procedure will, of course, only be attempted in good weather conditions.

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The greatest risk of hydrocarbons being released from the barges is from oil running off pieces of the wreck that are stowed onboard the KARLISSA A for disposal. Titan does not expect this to be a problem but if the pieces are contaminated it will have to be dealt with once onboard the KARLISSA A. In anticipation of this problem, Titan will construct a containment basin around the area designated to receive the wreckage and this area will be monitored continuously. Any hydrocarbons will be immediately cleaned up with absorbent boom and pads.

Titan's Response Plan (RP) for the wreck itself is based on two principles:

1. Remove as much oil from the wreck as practical before attempting to remove the wreck itself.

The most effective method of preventing the oil from escaping the wreck is to remove as much as practical while it is still in the wreck. Titan will inspect all compartments on the wreck and will remove any hydrocarbons to the extent possible before any attempt is made to cut or remove the wreck.

2. Be prepared to deal with what ever oil does escape from the vessel.

Titan cannot guarantee that all of the oil can be removed from the wreck or that it will remain inside the sections of the wreck as they are cut and removed from the water. In this regard, Titan will be prepared to recover any release of hydrocarbons to the greatest extent possible.

The Response Plan includes two separate Response Teams. The first response team is the Salvage Team itself. All members of the Salvage Team have been HAZWOPER trained and are experienced in dealing with hydrocarbons on wreck removal projects.

A dedicated Fuel Removal Team will be tasked with removing as much recoverable oil from the vessel as possible. The Fuel Removal Team will include divers in the event that oil must be recovered from submerged tanks using our "hot tap" technology. Any hydrocarbons found floating within the wreck will be corralled with absorbent boom and recovered with absorbent pads.

Any hydrocarbons which emanate from the wreck will be corralled using absorbent boom and cleaned up to the extent possible with absorbent pads. This will be done using Titan's 24 foot rigid-hull inflatable boat and/or jet skis which can be launched from the barges.

The second response team will be the National Response Corporation (NRC). NRC is our named Oil Spill Response Organization (OSRO) for this project. NRC will be responsible for cleaning up any oil that is released into the water and/or onto the beach that cannot reasonably be recovered by the Salvage Team.

NRC will provide the Shore-side Spill Response Plan. They will arrange for the necessary personnel and equipment according to the requirements of DEQ. A Response Matrix similar to the one provided on the following pages will be submitted to DEQ for approval. The assets will then be deployed according to the approved matrix.

The Response Matrix on the following page defines various levels of response for each Response Team according to the identified risk. The table below assigns risk to the various operations that will be performed throughout the project and the level of response that will be required during those operations. As the risk of having a pollution incident increases, the level of response will increase as well according to the Response Matrix. The Salvage master will be responsible for notifying the Shore-side Spill Response Team in a timely manner as new operations are about to commence.

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Response Matrix		
Level	Risk	Response
1	Low risk of spill due to wreck removal operations. Spill is possible due to bad weather or catastrophic failure of the hull.	Salvage Team <ul style="list-style-type: none"> - Maintains pollution watch and have personnel and equipment available to deal immediately with any incident.
		Shore-side Contractor (NRC) <ul style="list-style-type: none"> - Maintains spill response equipment on stand-by as per the Response Plan. - Personnel on standby and be available to respond within 12 hours.
2	Moderate risk of spill due to wreck removal operations (e.g. cutting or lifting sections), bad weather or a significant deterioration of the ship's structure.	Salvage Team <ul style="list-style-type: none"> - Maintains pollution watch with personnel and equipment available to deal immediately with any incident.
		Shore-side Contractor (NRC) <ul style="list-style-type: none"> - Maintains spill response equipment on stand-by as per the Response Plan. - Personnel on standby and available to respond within 4 hours.
3	Significant spill has occurred and/or the oil has migrated outside the wreck and threatens the local environment.	Salvage Team <ul style="list-style-type: none"> - Halts all wreck removal operations and assists as required with personnel and equipment. - Determine the source of any spill and secure if possible.
		Shore-side Contractor (NRC) <ul style="list-style-type: none"> - Respond as necessary to clean up spill from the beaches.

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The table below identifies several operations that will occur during the project and assigns a response level according to the risk at hand. The two response teams will respond accordingly as the threat level increases. This table and the Response Matrix will be updated as necessary and submitted to DEQ for approval. An emergency call list will be prepared closer to the start date of the project and will be included in the final document.

Operations	Level
Initial mobilization	1
Fuel oil removal and sanitation	1
Topside scrapping	1
Discharging scrap ashore	1
Positioning of barges alongside the wreck	2
Cutting operations below the waterline	2
Puller operations	2
Lifting operations	2
Bad weather	2
Significant spill	3

Once removed, the scrap will be taken into the port of Coos Bay to the Empire docks for proper disposal according to local, state and federal regulations. The Response Plan will remain in effect throughout these operations.

Appendix C

M/V New Carissa – Stern Section Wreck Removal and Disposal Plan

Note: Titan Maritime prepared the following Wreck Removal Plan in March 2007 that describes initial project designs. Since March 2007, certain details of the project have been refined, but the conceptual plan presented in the Wreck Removal Plan is still valid. The most up to date description of the project is provided in Section 2.0 of this Biological Assessment.



TITAN

A CROWLEY Company



CROWLEY

M/V New Carissa – Stern Section Wreck Removal & Disposal Plan



Coos Bay, Oregon
April, 2005

Revision	Date	Description	Reviewed by:	Approved by:
1	9 March 2007	Final – Submitted to State of Oregon	PR	TB
0	4 March 2007	For discussion	PR	
File	Titan NEW CARISSA Wreck Removal Plan Rev 3.doc		Author	Phil Reed / Project Manager
Date	9 March 2007		Signature	
Contractor	Titan, A Crowley Company 410 SW 4 th Terrace Dania, Florida 33004 USA		Client	State of Oregon Department of State Lands
Confidentiality Agreement				
The contents of this document shall not be disclosed to any third parties without the written consent of Titan Maritime LLC.				

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1 Introduction

Titan, A Crowley Company is a commercial marine salvage and wreck removal contractor headquartered in Fort Lauderdale, Florida USA with facilities in the UK and Singapore. Founded in 1980, the company is one of the very few in the world still doing marine salvage and wreck removal as its primary and only business. The company relies on its ability to package specialized emergency salvage equipment and expert salvage teams and fly them to shipping and marine incidents worldwide. Throughout its 26-year history, Titan has performed numerous salvage and wreck removal operations around the world on behalf of ship owners, port authorities, governments and international P & I clubs. During the last five years, Titan has performed over 70 major salvage and wreck removal operations and more than 300 projects overall. Titan's proven track record includes some of the largest and most difficult wreck removal operations ever accomplished. Titan is a member of the International Salvage Union (ISU) and the American Salvage Association (ASA) with Titan's principals having served as executive members and office holders of both organizations. For more detailed information on Titan's history, our philosophy and a list of all of our past projects, please refer to our website at www.titansalvage.com.

This document presents Titan's preliminary plans and timeline for the wreck removal of the stern section of the *M/V NEW CARISSA* from the surf zone near Coos Bay, Oregon. Considerable time has passed since Titan last surveyed the wreck in April 2005. This document assumes that the condition of the stern section has not materially changed since then. Subject to a final site survey, Titan's basic plan to remove the stern section has not changed. It is still our intent to conduct in-situ demolition of the stern section by conventional exothermic steel cutting and removal of the pieces by crane with the assistance of Titan's 300-ton linear hydraulic pullers. Given the exposed location of the casualty, Titan believes that jackup barges are an ideal work platform for this project.



2 Current Status of M/V NEW CARISSA –Stern Section

In February 1999, the M/V NEW CARISSA dragged its anchor and grounded outside the port of Coos Bay, Oregon. The vessel subsequently broke into two sections. The forward section was successfully removed. Attempts to remove the stern section were abandoned in early November 1999.

In April 2005, a Titan survey team flew to Oregon and surveyed the wreck over a two day period. The following report was issued.

The stern section remains relatively sound and intact in her current location approximately 150 yards off the beach near Coos Bay, Oregon. The forward end of the wreck is facing the beach, is listing approximately 45° to starboard and is trimmed slightly forward. The starboard side deck edge lies at or near the waterline. The water depth off the port aft corner was approximately 11 feet. Based on our observations, approximately 20%-25% of the wreck lies below the seabed. The wreck is completely flooded to the outside waterline.



Approximately 30 meters of the stern section remains from the transom to the forward engine room bulkhead. The estimated weight is 1200 tons. The superstructure has been removed except for a portion on the main deck level. The engine room and all of the machinery remain.

The engine room is open to the seas along the starboard side of the existing superstructure down to the deck edge making work inside extremely difficult particularly at high tide and during periods of significant swell.

The shell plating was in relatively good condition. The corrosion of the steel was not threatening the structural integrity of the hull. The remaining superstructure on the lower starboard side was beginning to deteriorate due to the incessant wave action.

The vessel is lying approximately 150 yards from the waterline at low tide. During our survey the swell was running 8-12 feet and breaking 150 yards to seaward of the wreck. The swell was reforming and breaking a second and third time before coming ashore. There was very little movement of the hull despite the 8-12 foot swell impacting on the transom and starboard quarter.



The adjacent beach area is part of the Dunes National Recreational Area. The site can be accessed with a four-wheel drive vehicle. The closest paved road is approximately two miles away. The site is covered by sand dunes and typical beach vegetation. Access to the wreck is extremely difficult and dangerous from the water.

The wreck appears to lie at the north end of a Snowy Plover Restriction Area which extends 2.5 miles north of the Coos Bay jetty. Beach access is restricted between 1 May and 30 September.



3 Wreck Removal Plan

Titan's plan involves mobilizing our two jack-up barges, the KARLISSA A (hereafter **KA**) and KARLISSA B (hereafter **KB**), or other appropriate barges as necessary. These two six-legged jack-up barges, each 170' x 80' x 13', will serve as the work and heavy lift platforms for the operation. The KB has a 350-ton capacity Manitowoc 60' ringer crane permanently mounted onboard. This crane works at extreme radius and in its current configuration has a capacity of 350 tons at 55' radius, 200 tons at 170' and up to 70 tons at 225'.

For this project, the two barges would be jacked alongside the stern section. That portion of the wreck above the waterline would be cut up and removed using the crane onboard the KB. That portion of the wreck below the waterline would be removed using Titan's 300-ton linear hydraulic pullers over fairleads fitted on the bow of the KA. The scrap would be processed and stored onboard the KA. If space becomes an issue, scrap will be back loaded onto a deck barge in periods of good weather.



KA and KB are six-leg jack-up barges providing maximum stability on the seabed. The DeLong pneumatic jacking system, using D-6-6 jacks with pneumatic grippers and pneumatic lifting cylinders, offer three characteristics unique in jacking systems.

- First, there are no oils, grease or other forms of hydrocarbons involved in the jacking process and as such they are often the only jacking system acceptable in environmentally sensitive areas where a sheen from lubricated systems would be prohibited.
- Second, the pneumatic lifting cylinders act as shock absorbers. They can jack up on seabeds comprised of rock, sand or mud. As the legs are self-levelling, the barges can work on entirely uneven bottoms.
- Finally, the legs may "free fall", either all at once or independently, at the push of a button. This helps to greatly reduce the time it takes for the hull to be jacked out of the water and above the influence of the sea conditions. The ability to slide the barge into a location and immediately free fall the legs is critical in maximizing weather opportunities to jack. The KA and KB have been jacked routinely in sea conditions with swells of 3 feet. They can be jacked in larger swells depending on the direction, wave length and wave frequency encountered. These conditions would be unthinkable on rack and pinion jacking systems or systems involving hydraulic lifting cylinders.

The legs are basically steel tubulars fitted with steel diaphragm baffles. They are 71 inch diameter by 1.5 inch wall thickness. Their simplicity makes them easy to extend and shorten.

The jacking speed is variable depending on the weight of the barge together with payload. However, the jacking speed ranges between 22 feet per hour in light condition to 10 feet per hour in a loaded condition.

The jacking capacity for each jack is 500 tons, equating to an allowable payload while jacking of 2,000 tons for the KA, 900 tons for the KB (as she is already fitted with a crane weighing 1,100 tons). Once jacked and locked, these payloads may be doubled.

Attached is a Site Assessment prepared by the engineering firm of Bennett and Associates. Bennett and Associates are experts in jack-up designs and regularly determine their operating parameters. The study, commissioned by the State of Oregon and prepared in October 2002, analyzed the use of two jack-up barges and was submitted as evidence in the trial of that year wherein the State of Oregon prevailed over owners and underwriters of the M/V NEW CARISSA. This engineering analysis addresses the suitability issues regarding the use of these barges on this project. The details set out in the analysis are just as valid now as when they were prepared in 2002.

Titan plans to utilize as many as ten of our 300-ton linear hydraulic pullers, otherwise known as "Titan Pullers" to remove the submerged portion of the stern section. The pullers have been used in a variety of manners including dragging vessels off the beach or onto barges, parbuckling vessels, rolling vessels onto barges or onto breakwaters or to vertically lift sunken vessels.



3.1 Scope of Work

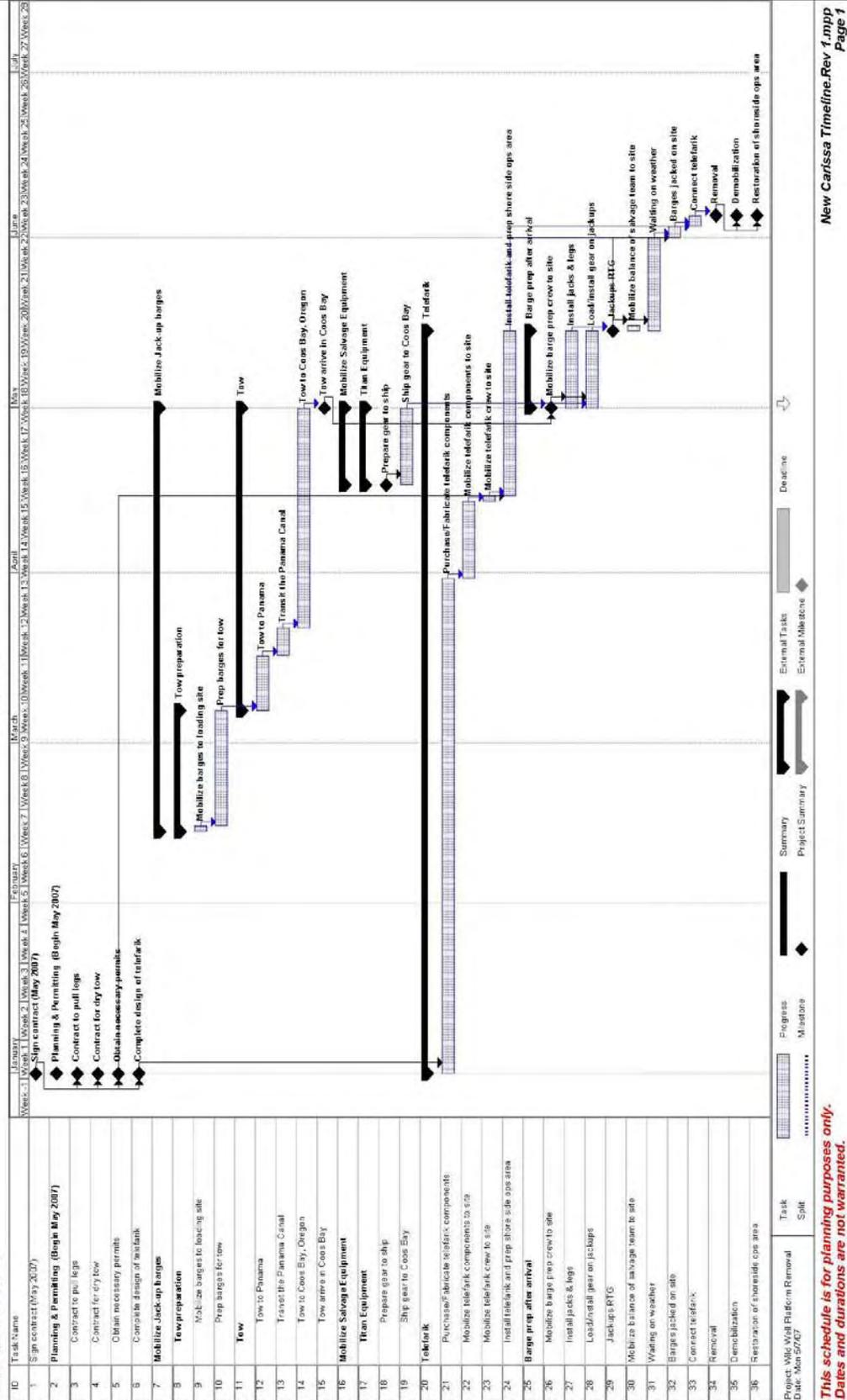
The wreck removal plan is broken into several defined operational phases as shown below with their anticipated start or completion date.

- | | |
|---|---|
| – Planning & Permitting | May 2007 |
| – Mobilization of jack-up barges
(US Gulf to Coos Bay) | Arrive Coos Bay no later than 15 April 2008 |
| – Personnel/Equipment Mobilization | Arrive Coos Bay no later than 15 April 2008 |
| – Preparation of jack-up barges | Completed no later than 15 May 2008 |
| – Preparation of shoreside staging area | Start no later than 15 April 2008,
Completed no later than 15 May 2008 |
| – Jack-ups barges on site | 1 June 2008 or as weather permits |
| – Stern section removal | 90 weather-working days, completed by 31 August 2008 |
| – Demobilization & Disposal | 60 weather-working days |
| – Restoration of shoreside staging area | 30 weather working days |

All dates are for planning purposes only and are not warranted at this time. A very preliminary Gantt chart for this project is provided on the following page. The State of Oregon undoubtedly realize the urgency in signing a contract that gives the contractor sufficient time to plan and mobilize in order to take advantage of the summer 2008 weather window.



M/V NEW CARISSA - Stern Section Proposed Wreck Removal Timeline Coos Bay, Oregon Spring 2008



New Carissa Timeline.Rev 1.mpp
Page 1

This schedule is for planning purposes only.
Dates and durations are not warranted.

3.1.1 Planning & Permitting

A planning team, consisting of the Project Manager, Salvage Master, On Site Coordinator and others as necessary will be responsible for conducting all engineering and logistical planning activities including but not limited to the following:

- Conduct site survey and pre-work for the applicable permits
- Start permitting process and sediment sample (if necessary)
- Meet and discuss planning with local officials
- Contract for barge tow
- Identify and plan for barge preparation in Coos Bay
- Identify and plan for shoreline staging area
- Detailed planning of shoreside staging area
- Design and installation of the téléphérique
- Procure spares and supplies required for the operation
- Accommodation and travel coordination
- Preparation of Site Safety Plan
- Follow-up on permitting/regulatory issues

The State of Oregon will assist Titan in obtaining all necessary permits.

3.1.2 Mobilization of Jack-up Barges

Preparations for towing the KA and KB will be conducted at a suitable shipyard facility in the US Gulf. These activities will include the following primary tasks:

- Mobilize barges to shipyard in US Gulf.
- Remove all six legs from each barge
- Prepare & lash barges for ocean towage
- Outfit barges for Panama Canal transit
- Coordinate mobilization of towing vessel

A suitable tug will be chartered for the towage of both barges. The barges will be towed on a tandem configuration via the Panama Canal. This towage will require approximately 50 days including a five day allowance for transiting the Panama Canal.

3.1.3 Personnel/Equipment Mobilization

A Project Manager will be assigned to administer all contractual, financial, personnel and technical support operations. A Salvage Master will be appointed for the overall on-site wreck removal operations. The Salvage Master will be supported by a Salvage Team of divers, welders, burners, engineers and equipment operators. A Logistics Coordinator will be present on site to assist as required with purchasing, shipping, personnel etc. and to liaise with local officials.

Prior to the arrival of the barges, an advance team will be deployed to Coos Bay. The primary mission of this team will be to conduct all pre-arrival activities including but not limited to:

- Discuss final planning with local officials
- Confirm all permits
- Make arrangements for local accommodations

- Establish weather & sea state monitoring
- Develop detailed Site Safety Plan
- Develop emergency response plan
- Develop pollution response plan

Titan intends to utilize a 27 person Salvage Team as outlined below to manage and execute this operation. Normal work hours will be from 0600-1800 each day followed by a support night shift. The Salvage Team will consist of the following personnel:

- 1 x Project Manager
- 1 x Salvage Master
- 1 x Site Safety Officer
- 1 x Logistics Coordinator
- 2 x Salvage Foremen
- 2 x Salvage Engineers
- 2 x Jacking Engineers
- 1 x Crane Operator
- 1 x Dive Supervisor
- 7 x Divers
- 8 x Salvor/Burners/Welders

The Salvage Team will be quartered in nearby housing. There will be catering and office facilities on site.

Engineering assessments will be performed by Titan's in-house Naval Architects and Marine Engineers supported by sub-contracted engineering consultants if required. Additional local subcontractors will be utilized as required. A shore side oil spill response contractor will be on standby and deployed on site during high-risk operations to respond to any oil spill or debris impact. In addition, all salvage team members are Hazwoper trained and capable of responding to oil prevention and response situations.

Equipment will be mobilized from Titan's Fort Lauderdale warehouse and shipped to coincide with the arrival of the KA and KB in Coos Bay. Titan plans to mobilize a standard spread of salvage equipment including but not limited to the following:

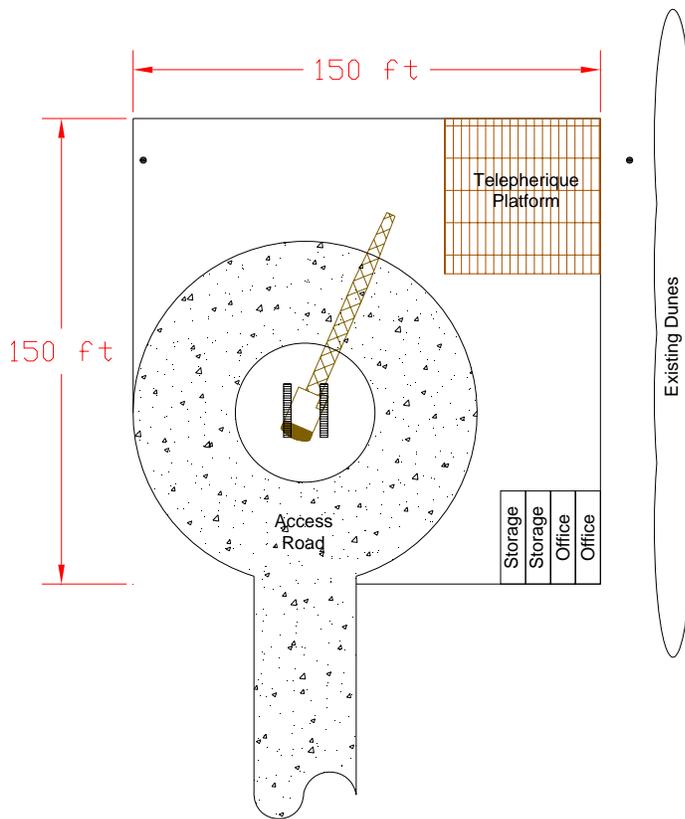
- 10 x 300-ton Titan Pullers
- 25 shots x 3" anchor chain
- 3 x hydraulic power packs
- 2 x 200 KW gensets
- 4 x 400 amp welding machines
- 8 x 4KW light plants
- 8 x oxyacetylene cutting packages
- 2 x 65 ton double drum mooring winches
- 4 x 5 ton pneumatic winches
- 3 x heavy rigging packages
- 1 x surface supplied dive spread
- 1 x pollution control package w/ skimmer
- Spare parts and consumables

3.1.4 Barge Preparation

Upon arrival in Coos Bay, the jack-up barges will be moored at a local facility to prepare them for the work site. These activities will include but not be limited to the following primary tasks:

- Install all six legs of each barge
- Test jacking system
- Rig and test Manitowoc crane
- Load hired road crane on each barge
- Install 6 x Titan Pullers on the KA
- Install 3 x Titan Pullers on the KB
- Install surface-supplied dive spread
- Prepare mooring winches

3.1.5 Shoreside Staging Area Preparation



Titan will require a shoreside staging area on the beach directly to the East of the wreck. The staging area will be comprised of the following:

- A staging area approximately 150 feet along the dune line and 150 feet back from the dune line. This area will be the site of the téléphérique (cable car) base station, two twenty-foot office container, several twenty-foot containers for storage of oil spill response gear, parking, a crane and an access road for trucks delivering personnel and supplies. The fore dunes will be left in their current condition to the greatest extent possible. The 22,500 square-foot area behind the fore dunes will be leveled and maintained sufficiently to accommodate the vehicles used by the salvage crew, the monitoring authorities and the delivery trucks. Titan will also require an access road into the site sufficient to accommodate the delivery trucks.
- Vehicle access onto the beach will also be required but should only be required on a very limited basis.

The work area will be posted with warning signs and will be fenced in order to discourage access by the general public. Night time security at the site will be provided by Titan. As so much of the wreck removal operation will be weather and tide sensitive, the salvage crew will be accessing the site at varying times of the day and night. There will be lighting at the shore end of the téléphérique and on the KA. Both the KA and KB will be well lighted at night.

A permit for low altitude use of a helicopter will be provided. In order to reduce the risk associated with regular helicopter transfer of personnel and equipment, often in fog or marginal weather conditions, and in order to lessen the environmental impact on the area, a téléphérique (cable car) will be installed from the beach to the KARLISSA A.

The téléphérique base station will be constructed above the HHW mark. The téléphérique cable will be run to the upper deck of the KA. The téléphérique will be used for regular safe access between the shore and the jack-up barges for men, equipment, and supplies. The two onshore towers will be installed in the shoreside staging area. Two dead men will be installed to support the towers. The dead men will consist of a heavy anchor buried to the west of the access road. The towers will elevate the heavy cable from the dead man high enough off the sand road so as not to restrict the use of the road.

For the safety of the general public, we require that access to the road and the work site be restricted to authorized personnel only (i.e. contractors and Local/State/Federal authorities). In addition to making the operation safe for the general public, the restriction will have the added benefit of lessening the stress on the Snowy Plover population that the activities at site might be expected to bring.

The installation of the towers and their steel support structures will require the use of a suitable excavator and a hydraulic all terrain crane. The crane will be of sufficient a size to erect the towers and the elevated access platform and to subsequently provide the means of loading the cable car with required supplies during the course of the operation. It will remain on site until the wreck removal operation is complete after which it will be used to dismantle the two towers and the entire shore side facility.

The dead men used to secure the towers will be buried in a hole dug by the excavator on land to the West side of the shoreside staging area. The tracked excavator will be large enough to transport the anchor to the hole and bury it. A three inch chain will lead from the shank of the buried anchor towards the inshore tower and a heavy wire cable will be shackled from the chain to the top of the tower. The amount of material excavated for the dead man will be approximately 40 cubic yards.

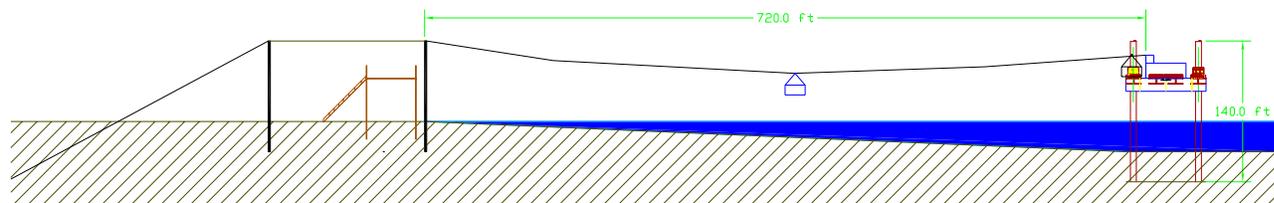
3.1.6 Positioning and jacking the barges

Once the jack-up barges and shoreside staging area preparations are completed, the jack-up barges will be towed from Coos Bay to the site. It is our intention to be ready to mobilize to the site on or before 1 June 2008. Normal jacking operations are weather sensitive and generally require combined sea/swell conditions

not exceeding 3 feet.

Positioning the jack up barges at their planned locations adjacent to the engine room will

therefore only be done on a calm day.



The exercise will require the use of two bulldozers on the beach, an excavator for general assistance and a helicopter to feed the mooring lines ashore to the bulldozers. The bulldozers, in addition to winches on board the barges, will be used as both the means to pull the barges into position and as temporary anchors until the legs of the jack ups have been dropped onto the sea bottom and the barges have been jacked out of the water. Thereafter no further use of bulldozers on the beach will be required. One machine, possibly smaller, may be kept in the staging area to maintain the dunes and access roads as required.

When the barges are in their respective positions adjacent to the wreck, the legs of both jack-up barges will be jettied into the sand to a depth of approximately 30 feet. At this depth they will not be subject to scouring even from the high energy waves breaking directly under the barges and the two units will be in position to survive the anticipated weather.

The legs will be deep enough in the sand to absorb the 1800 ton loads that we will be capable of exerting off the bow of the KA and the 800 tons of lift we intend to apply from the KB. The 6 x 300-ton pullers on the K A will be connected to the port side bilge radius of the engine room and the two pullers on the stern of the K B will be connected as low as possible on the extreme stern of the wreck. The intent is to apply a total force in excess of 2,600 metric tons, with all eight pullers engaged, to roll the engine room with its estimated lightweight of 1200 tons (plus an unknown weight for sand), out of its cradle in the sand. In the process the formerly submerged and buried portion of the wreck will gradually be exposed to where most of the cutting will hopefully be done without using divers and underwater cutting techniques. This will greatly enhance the safety for our personnel and the speed of the operation.

The barges will be jacked up to achieve a 20 to 30 foot air gap depending on actual conditions. Once the two barges have been jacked clear of the water and the téléphérique has been established between the KARLISSA A and the shore, the operation to remove the stern section of the NEW CARISSA will commence.

3.1.7 On Site Removal

Titan has consistently maintained our intent to remove the stern section in its entirety and remove, so far as is practical, the separate deck crane, assuming some portion of the latter is still accessible and has not been completely swallowed by the sand.

Upon completion of all safety and operational preparations, hull cutting and dismantling operations will commence. This process will primarily consist of the following sequence of tasks:

- Prepare the stern section for the safety of personnel to the extent practical
- Remove sand by airlifting
- Start dismantling the wreck by gas cutting and lifting pieces onto the KA utilizing the Manitowoc crane onboard the KB.
- Load and stack scrap on the KA
- Identify and prepare connection points for Titan Pullers.
- Connect Titan Pullers and pry stern section out of the sand.
- Continue to lighten the stern of the NEW CARISSA to the maximum extent possible in pieces weighing less than 200 tons.
- Provide beach inspection response to any pollution, including debris generated by the operation, floating onto North Beach.
- Provide clean crews as necessary.

All pieces of the stern section will be removed to the deck of the KA. There they will be further processed for more efficient stowage. If necessary, sufficient scrap steel will be transferred onto a deck barge tailed into the two jack-up barges during periods of good weather, so as to allow the balance of debris to be properly stowed on the deck of the KA.

3.1.8 Removal of Crane

Over the years we have tried to be consistent in reminding all concerned that the deck crane is attached to a substructure comprised of the No. 5/6 transverse bulkhead of the NEW CARISSA. This is in turn attached to the double bottoms of hold No. 6 and an unknown portion of hold No. 5, both of which may be assumed to be lying buried in sand at depths to 50'. We have always made it clear we do not intend to remove this substructure.

If the deck crane is in any way visible at low water spring tides it is Titan's plan to connect to it with our 300 ton linear chain pullers and cranes and rip as much of it as possible out of the sand. In any event, if it is visible it will be removed to the sand line as a worst case. Since connecting the lifting gear to the ships crane is potentially a diver intensive task, our plan calls for focusing on removing the crane during the rare periods of relatively calm seas that might be anticipated during the summer.

3.1.9 Demobilization

Once the operation is complete, the téléphérique cable will be recovered from the KA and the barges will be jacked down closer to the water. The jetting system installed on each leg will be used to extract the legs one at a time. With all legs free and bearing, the barges will be jacked afloat and pulled into deeper water by the same anchor winches and anchors that allowed the barges to be tailed into position in the first instance. There they will be towed clear.

The KB will be towed into the port of Coos Bay where contractor's equipment will be returned ashore. There is a possibility that the KA will have obtained clearance to be towed to British Columbia where the scrap steel will be removed for re-cycling. Otherwise she will be towed into Coos Bay for demob as well. Preparations will then commence for demob of the barges to the US Gulf.

3.1.10 Shore side restoration

The entire shore side staging area will be dismantled and removed from the site. The excavator will remove the dead men unless it is deemed preferable by the relevant environmental agencies to leave them in place. The site will be restored to the degree mutually agreed by all parties, and as required per the applicable permits.

4 Relevant Project History

Over the years, Titan has performed many innovative salvage and wreck removal plans using the jack up barges, the Titan Pullers or a combination of the two. The plan to remove the stern section of the M/V NEW CARISSA takes pieces from these projects and brings them together in what Titan believes is an innovative and relatively weather independent project. The following are examples of several of those projects.



M/V A Regina (1990) - Titan's first wreck removal job was performed with the help of a jack-up barge. The casualty was scrapped in situ in Mona Passage between Puerto Rico and the Dominican Republic. This photo to the left shows the original ten-legged jack-up barge *KARLISSA* which was later cut in two producing the *KARLISSA A* and the *KARLISSA B*.

Crane Barge MB 101 (1995) – This casualty was scrapped in situ off the sea defenses along the English coast. The crane was able to work in wind conditions to Force 9 without regard to sea state. Both jack-ups are shown in the photo. This casualty was cut-up and back loaded onto the deck of the KA. When the KA's deck was full, the KA would jack down, go into port to discharge the steel and then return.



M/V NEDLLOYD RECIFE (1997) – The remnants of this 1400 TEU containership were scrapped in situ in Sao Francisco du Sul, Brazil utilizing the KB and a floating deck barge.

M/V SERGO ZAKARIADZE (2000) – This vessel was refloated from the breakwater at the entrance to San Juan, Puerto Rico after lightering 12,000 tons of bulk cement using the KB.



M/V BOWSTRING (2003) – Two Titan Pullers were rigged for a 500 ton vertical lift of the deck of the KA to remove the wreck of the BOWSTRING in Jacksonville, Florida.

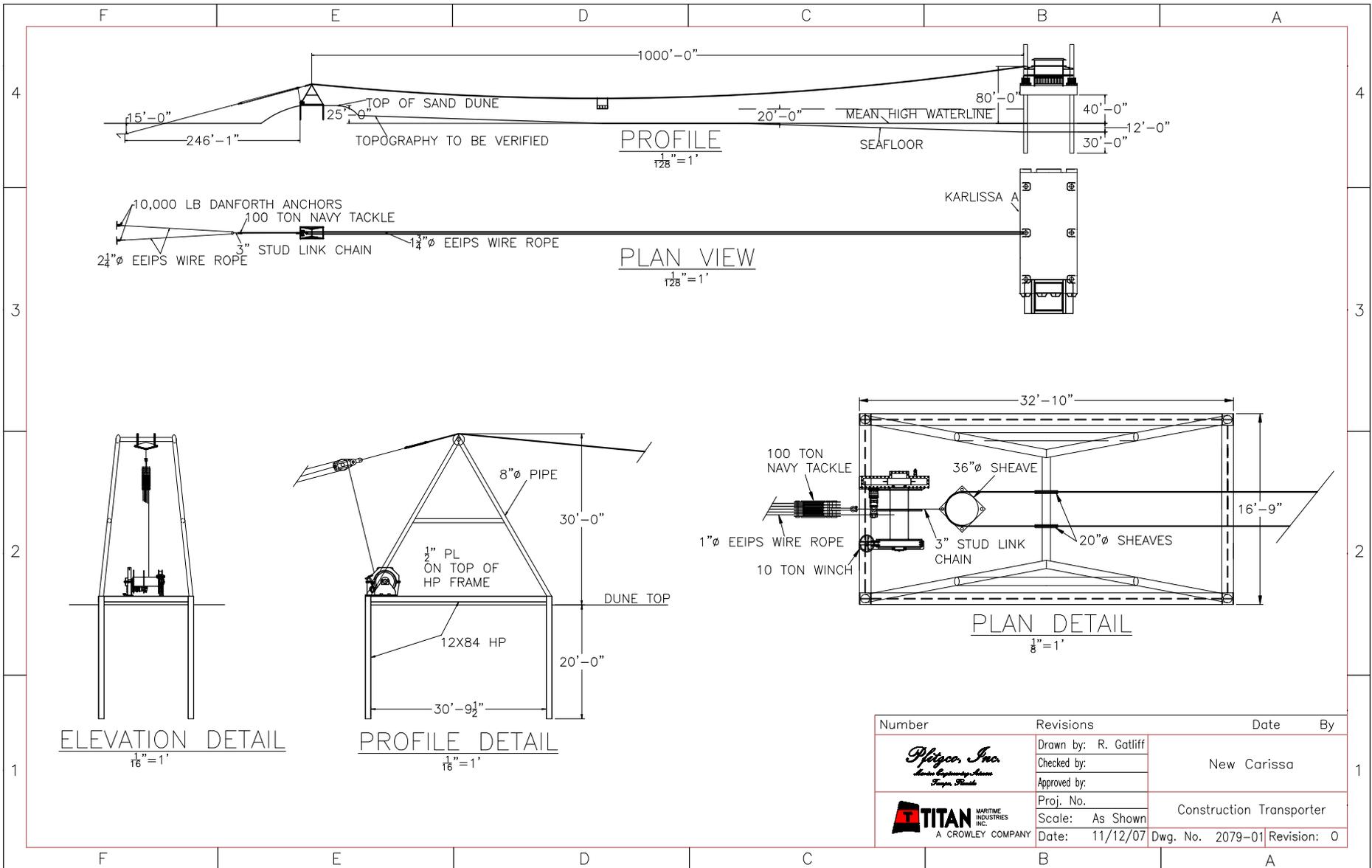
Utilizing the hydraulic power of the Titan Pullers and the jacking system's capacity to lock-and-hold 2000 tons, the BOWSTRING was lifted off the bottom and raised just above her waterline. The BOWSTRING was then dewatered and refloated.



M/V CONTRADER (2004) - These photos show the installation of the pullers on the deck of the KA during a parbuckling operation in the Bahamas. The pullers will be arranged in a similar manner for removing sections of the *NEW CARISSA* stern section.



Appendix D Project Plans



Appendix E

Photos



Photo 1. Facing west at the New Carissa wreck



Photo 2. Facing south along sandy beach, west of proposed construction transporter location



Photo 3. Facing east from the sandy beach at the foredune.



Photo 4. Facing south at the foredune area and Foredune Road near proposed construction transporter location.



Photo 5. Foredune Road, facing south from near the construction transporter location.



Photo 6. Facing east from Foredune Road at proposed location for deadman anchors

Appendix C

State Historical Preservation Office Letter



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

COOS BAY DISTRICT OFFICE

1300 AIRPORT LANE, NORTH BEND, OR 97459

Web Address: <http://www.blm.gov/or/districts/coosbay> E-mail: OR_CoosBay_Mail@blm.gov

Telephone: (541) 756-0100 Toll Free: (888) 809-0839 Fax: (541) 751-4303



COOS BAY DISTRICT OFFICE

2008 JAN 16 A 9:54

0312(OR-120)

NOV 30 2007

SHPO CASE# 07-2875

RECEIVED

Mr. Roger Roper
Assistant Director, Heritage Programs Division
Deputy State Historic Preservation Officer
Oregon State Historic Preservation Office
725 Summer St NE, Suite C
Salem, OR 97301-1012

T25S
R14W
Section 13

RECEIVED

**RE: Request for Concurrence Finding of No Adverse Affect
Titan Maritime New Carissa Project No: 439497
Coos Bay, Coos County, Oregon**

DEC 03 2007

STATE HISTORIC
PRESERVATION OFFICE

Dear Mr. Roper:

The Bureau of Land Management (BLM) has received an application from Titan Maritime for temporary right of way to provide a staging area and access for the New Carissa wreck removal.

Titan Maritime intends to remove the remaining stern section of the New Carissa ship wreck from the tidal zone of the North Spit of Coos Bay. This wreck removal operation will require a shoreline staging area near the dune line, approximately 1,000 feet east of the wreckage. The stern of the New Carissa is located in the surf zone near Coos Bay, Oregon (Township 25 South, Range 14 West, Section 13). Titan proposes to conduct in-situ demolition of the stern section by cutting and removal of the pieces by crane with the assistance of Titan's hydraulic pullers on two jackup barges and work platforms in the ocean. Titan also proposes to use a temporary shoreside staging area on the foredune directly east of the wreck. All structures and developments associated with this staging area will be temporary and will be removed after the wreck removal operation. The staging area will include a construction transporter that will be used to transfer crew and supplies to the wreck removal site, similar to an aerial tramway. No scrapped materials from the wreck will be moved to the staging area. All material will be removed by barge. This wreck removal operation, including mobilization and demobilization, is estimated to last approximately eight weather-working months, with an estimated start date of March 2008. The staging area will occupy 0.23 acres and will contain the construction transporter base station, one to two 20-foot office containers, several 20-foot storage containers, a parking area, and heavy machinery, including, but not limited to, cranes, bulldozers, and excavators. Four metal H-beams, each approximately 1 x 1 foot square will be driven as piles approximately twenty feet into the ground to help stabilize the transporter base. One or two deadman anchors, as required, will be buried to the east end of the staging area to support the construction transporter; approximately 40 cubic yards will be excavated.

A search of the Oregon Archaeological site files at the Oregon State Historic Preservation Office does not show any recent archaeological surveys or reports within the immediate vicinity of the New Carissa Project. The closest survey projects have been conducted for a proposed development of portions of the North Bay Marine Industrial Park, located in T25S, R13W, Section 7 (Darby 2005) and a survey for a cellular communications tower site located in T25S, R13W, Section 18 (Stipe 2006). Both surveys did not find cultural resources. Dr. Leland Gilson, former SHPO Archaeologist, has plotted on a map several Indian sites along the bay side (east) of the spit. These sites have never been confirmed; however, these areas will be avoided by New Carissa wreck removal project activities. Lottie Evanoff, a Coos informant during the early 20th century, reported that along the bay side shoreline (all of Section 18 and Section 8 as

far north as Jarvis Landing) "... there is no place to land and no drink of freshwater, and no Indian settlement until you get to the south end of the old beach stage-route... which is Jarvis Landing" (Harrington, 1942[24]:195). Subsequently, no known prehistoric sites are located within the immediate project vicinity.

In 2000, Stephen Dow Beckham did an extensive investigation on the historical use of the North Spit by federal agencies. As early as 1856, the Coast Guard was active in mapping the North Spit and the bay itself. The U.S. Army Corps of Engineers in the 1870s began overseeing the project of keeping the sand movement from the bay's entrance, and keeping the effects of the tide on the bar from hampering ships entering the harbor. In 1891 the Corps of Engineers began work on the creation of the Coos Bay North Jetty. When completed in 1894, it extended nearly two miles. Rock was transported to the North Spit by barge across Coos Bay. Several episodes of jetty repair and reconstruction followed, including during the 1920s, when the South Jetty was constructed. These efforts transported rock to the jetty by barge but in 1939-1940, the Corps of Engineers began another reconstruction of the north jetty by laying rail track from the Southern Pacific Coos Bay branch line to the jetty. At the end of the construction period, in 1940, eight miles of rail was laid and 236,342 tons of stone was dumped (Tonsfeldt 2007). A portion of this railroad grade also forms a roadbed, which is part of the Foredune Road where Titan's construction transporter will be located. The Bureau of Land Management (BLM) has completed a National Register of Historic Places (NRHP) evaluation of the North Spit Railroad as a contributing element of a historic district, and concludes that "The North Spit railroad is proposed for NRHP eligibility as part of a potential historic district, rather than a stand-alone resource" (Tonsfeldt 2007).

The section of the historic railroad grade which would be affected by the proposed action has been heavily impacted from recreational use and much of the original grade is gone. Additionally, there are no recorded intact features associated with the railroad grade in the project area. Ward Tonsfeldt (2007), in his evaluation of the historic North Spit railroad, has graded the condition of this segment of rail line as a C, which is classified as: "Grades [railroad] in this category retain their engineering elements, but have been re-used as motor vehicle roads... Industrial features and civil engineering features have become indistinct and generally would escape notice by the untutored eye" (see enclosed map). The general area of the railroad grade was heavily disturbed during the original attempt at removal of the New Carissa in 1999; heavy equipment and trucks were located on the grade, foredune, and beach at that time. Archaeological monitoring of the emergency operations was conducted by the BLM District Archaeologist during the emergency work, and no evidence of historic (or prehistoric) resources was observed in the vicinity of the emergency response area.

Recommendation

Based on these findings, the construction activities associated with the building of the temporary transporter tower, and office/storage buildings should have no effect to the historic North Spit railroad grade. About 200 feet of the 3.64 mile long segment directly adjacent to the wreck will be disturbed, but the effect is not adverse as it will not alter the railroad's association with events that have made it a significant contribution to the history of the North Spit. Office/storage buildings will consist of temporary buildings, such as trailers and will be brought to the site. Titan plans to level the foredune to the level of the historic road/grade and a heavy gauge mesh will cover newly exposed areas and will act as matting to protect the affected area, as well as help with settling. The foredune will be restored to existing conditions following the wreck removal. No impacts to prehistoric or historic archaeological resources are anticipated as a result of the temporary construction of the transporter tower and office/storage buildings.

Preliminary application of Section 106 Criteria for Identification and Evaluation of Historic Properties [36 CFR 800.5(b)] indicates "a **finding of no adverse effect**" for the proposed Titan Maritime New Carissa Project No: 439497 based on the findings outlined above. BLM requests your concurrence with this finding.

If you require more information about the project or have any question, please contact Linda Petterson, Realty Specialist (541-756-4207) or Steve Samuels, Archaeologist (541- 751-4244).

Sincerely,

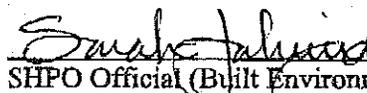


Paul T. Flanagan
Acting Umpqua Field Manager

Attachments:

- Map Coos Bay North Jetty Railroad(1pg)
- Section 106 Documentatiion Form for Coos Bay North Jetty Railroad(36pp)
- State of Oregon Archaeological Site Record for Coos Bay North Jetty Railroad (3pp)
- Section 106 Level of Effect Form (2pp)

The State Historic Preservation Office concurs that the proposed wreck removal project for the proposed Titan Maritime New Carissa Project No: 439497, will result in **No Historic Properties Adversely Affected.**


SHPO Official (Built Environment)

1/14/2008
Date


SHPO Official (Archaeology)

1/15/2008
Date

References:

- Beckham, Stephen Dow
2000 *Coos Bay North Spit: Historical Investigations of Federal Activities in Coastal Oregon.*
Submitted to US Department of Interior, Bureau of Land Management, Coos Bay District.
- Darby, Melissa
2005 *Cultural Resource Report for a Portion of the North Bay Marine Industrial Park, North Spit Coos Bay.* Report on file, Oregon State Historic Preservation Office.
- Harrington, John P.
1942 *Aleas, Siuslaw, Coos, Southwest Oregon Athapaskan: Vocabularies, Linguistic Notes, Ethnographic and Historical Notes.* John Peabody Harrington Papers, Alaska/Northwest Coast, Elaine Mills, ed.
- Stipe, Frank
2006 *A Cultural Resource Survey for the COS Empire ALT #1 Cellular Communications Tower Site, Coos County, Oregon.* Report on file, Oregon State Historic Preservation Office.
- Tonsfeldt, Ward
2007 *Determination of Eligibility for the Coos Bay North Jetty Railroad.* In fulfillment for a historic district National Register of Historic Places nomination submitted to US Department of Interior, Bureau of Land Management.