

Appendix M
Cultural Resources Survey

State Historic Preservation Office Report Cover Page

Year:

Title:

Author(s):

Agency/Client:

District/Contractor:

Agency/Client Report#:

Project Acres:

Survey Acres:

County(ies):

Township:

Range:

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Section(s):

Archaeological Permit Number(s):

Accession Number:

Reports submitted to:

Tribes:

UOMNCH:

LCIS:

Curation:

Report Addresses Testing:

Have tribes been contacted or consulted?

List tribes:

List any other groups contacted or consulted:

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*State Historic Preservation Office
Report Location Continuation Sheet*

County(ies):

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Range:

Section(s):

Report #

State Historic Preservation Office Report Summary of Resources and NRHP Eligibility

RESOURCES

Archaeological:

Site: Isolate: Built Environment: TCP: HPRCSIT: Other:

Count:

***Please be sure all archaeological forms have been submitted on-line**

***EVALUATE PROPERTIES UNDER ALL FOUR CRITERIA.
BE SURE TO INCLUDE JUSTIFICATION IN THE REPORT***

Oregon
On-Line

Form #: Trinomial: Temp# or Name: Criterion A: Criterion B: Criterion C: Criterion D:

NRHP ELIGIBILITY

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Cultural Resources Survey and Evaluation

Safety Improvements Project

**Southwest Regional Airport (OTH)
City of North Bend, Coos County, Oregon**

Prepared for

Federal Aviation Administration

Prepared by

**Mead
& Hunt**

www.meadhunt.com

and



May 2019

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Appendix

- A Correspondence

Section A.

Project Description, Area of Potential Effects, and Summary of Findings

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Section A
Project Description, Area of Potential
Effects, and Summary of Findings

1. Introduction

The Southwest Oregon Regional Airport (OTH, or the Airport) is a commercial service airport located on the southern coast of Oregon, within the city of North Bend. The Airport completed an Airport Master Plan in 2013 that identified the need for safety improvements. The proposed improvements include adding embankment to the northwest end of Runway 4-22 in order to meet Federal Aviation Administration (FAA) Runway Safety Area (RSA) standards; remove taxiway connectors; reconstruct the main general aviation apron pavement; and install maintenance improvements to approach lighting system (MALSR). In addition, the Aircraft Rescue and Fire Fighting (ARFF) building will be demolished and reconstructed.

The proposed project will be funded by the FAA and, as such, constitutes a federal undertaking and is subject to the requirements of the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act of 1966 per 36 Code of Federal Regulation (CFR) Part 800 (Section 106). The FAA, as the lead agency, and the Airport, as project sponsor, are preparing an Environmental Assessment (EA) and completing Section 106 review to evaluate the effects of the proposed project on historic properties to comply with NEPA and Section 106.¹ Historic properties are defined as buildings, structures, objects, sites or districts with historical or archeological significance that are listed in, or eligible for listing in, the National Register of Historic Places (National Register).

As defined by FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, an EA and Section 106 review must discuss the reasonably foreseeable environmental consequences of a proposed project, and the analysis must address historic properties that would be directly, indirectly and cumulatively affected by the proposed project.

Identification and evaluation efforts found no archaeological resources and no historical resources in the built environment listed in or that qualified for listing in the National Register; therefore, this report recommends a finding of *no historic properties affected* under Section 106.

This *Cultural Resources Survey and Evaluation Report* for the OTH Safety Improvements Project is organized into three sections:

- Section A provides the location of the project, a description of the project, the Area of Potential Effects (APE), and a summary of findings.
- Section B of this report addresses archaeological resources based on research and field review completed by Transect Archaeology.
- Section C addresses historical resources in the built environment based on research and field review completed by Mead & Hunt, Inc. (Mead & Hunt).

¹ The term “historic properties” is a regulatory term that refers to resources eligible for the National Register, whereas “historical resources” or “archaeological resources” refer to resources that are at least 45 years of age that were identified and evaluated for listing in the National Register.

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2. Project Location

The Airport is located northwest of downtown North Bend, Coos County, Oregon. The Airport property is generally bound by Pony Slough and the Coos Bay channel to the east and north/northwest, and Colorado Avenue and Maple Leaf street to the south. The Airport comprises 619 acres with three runways, a passenger terminal to the south, and a series of aircraft hangars and storage buildings located east/southeast of the passenger terminal. An office park is west and south of the terminal. Service roads extend around the east, west, and south sides of the Airport. The land surrounding the Airport is characterized by slightly rolling hills largely in industrial and residential uses, interspersed with areas of modern commercial development. Figure A.1 below provides a vicinity map of the Airport. Figure A.2 provides an Airport location map illustrating the existing airport property boundary and surrounding development.

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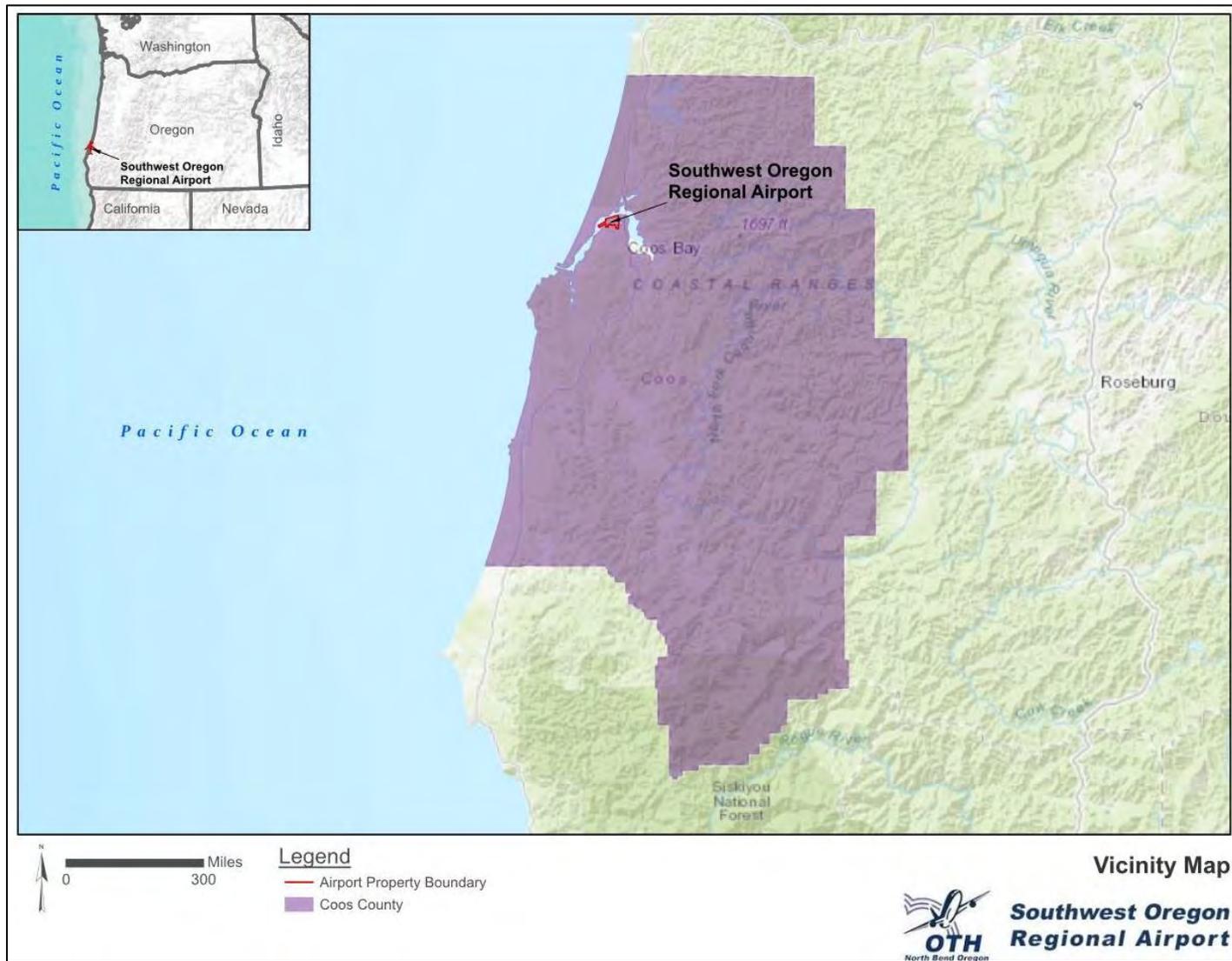
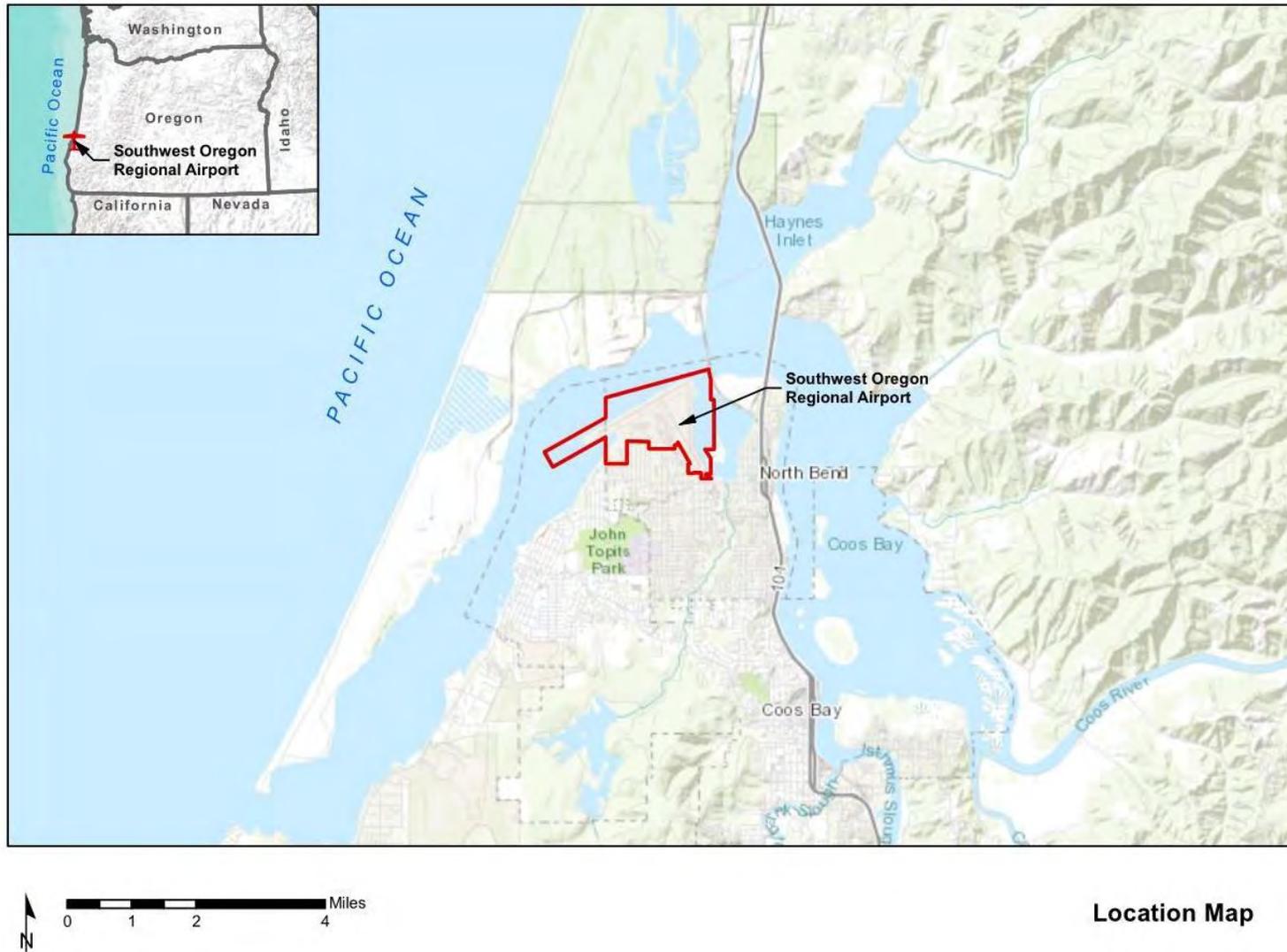


Figure A.1: Vicinity map.

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Location Map

Figure A.2: Airport location map.

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3. Project Description

The 2013 Airport Master Plan update completed by the Airport with the FAA identified the following safety improvements:

The Runway 4-22 RSA: The FAA requires a safety buffer surrounding the Runway 4-22. To meet these standards, the Airport proposes a one-time fill (with no annual allotment) of an approximately 0.5-acre area at the northeast end of the runway, where Coos Bay intersects with Pony Slough, designated Essential Fish Habitat and known Eelgrass habitat.

Taxiway Connectors: The AC recommends the elimination of direct access (without turns) from apron or gate areas to a runway. Two taxiway connectors at OTH that provide direct access to Runway 13/31 from the main General Aviation ramp will be removed.

General Aviation Aprons: The Airport aprons provide areas for aircraft parking, fueling, and tie-downs, as well as aircraft movement to and from parking and storage hangars. The main General Aviation apron located west of Taxiway A, adjacent to the northern one-third of Runway 13-31, is approximately 36,110 square yards and serves both based and transient general aviation aircraft. The apron was constructed during World War II (WWII) and resurfaced in 2001. The pavement condition has deteriorated, and pavement reconstruction will be required.

Aircraft Rescue and Fire Fighting (ARFF) Building: The ARFF building is located immediately south of the main hangar, on the southwest side of the main apron. Built in 1960, the existing ARFF building houses two fire rescue vehicles, and essential equipment and is in poor condition. This building has exceeded its useful life and service condition and should be replaced with one that has the ability to accommodate two trucks, fire station boats, and ARFF personnel and equipment based on design standards specified in FAA Advisory Circular (AC) 150/5210-15A, Aircraft Rescue and Firefighting Station Building Design.

Medium Intensity Approach Lighting System (MALSR): A MALSR is the Approach Light System (ALS) standard configuration for Category I precision runways. The MALSR consists of a threshold light bar and seven five-light bars located on the extended runway centerline with the first bar located 200 feet from the runway threshold, and the remaining bars at 200-foot intervals. Two additional five-light bars are located, one on each side of the centerline bar, 1,000 feet from the runway threshold forming a crossbar 66 feet long. The threshold lights are a row of lights on 10-foot centers located coincident with and within the runway edge lights near the threshold and extend across the runway threshold. The RAIL portion of the facility consists of five sequenced flashers located on the extended runway centerline. The first is located 200 feet beyond the approach end of the MALSR with successive units located at 200-foot intervals. Maintenance of the MALSR units normally require replacement of instrumentation and electrical fittings, underwater cables, the platforms must be brought up to current OSHA compliance standards. Occasionally, tower piles may need to be replaced.

Glide Slope: FAA AC 150/5300-13 Section 602 describes glide slope antenna as follows: "c. Glide Slope Antenna. The glide slope (GS) signal is used to establish and maintain the aircraft's descent rate until

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visual contact confirms the runway alignment and location. The GS antenna may be located on either side of the runway, and the most reliable operation is obtained when it is located on the side offering the least possibility of signal reflections from buildings, power lines, vehicles, aircraft, etc.”

The existing glide slope antenna at OTH does not meet the minimum required distance from center of runway (150 feet). Several alternatives being considered include: 1) relocation of glide slope 30 additional feet to the edge of Coos Bay and beyond the existing footprint of OTH, resulting in a small fill location; 2) relocation to the opposite side of the runway center, between taxiway C and the runway. Associated equipment shelter, and access way will be located approximately 150 feet south of the Runway 4-22 centerline. This location may require excavation for utilities.

4. Area of Potential Effects

The APE is the geographic area or areas within which an undertaking may directly or indirectly alter the character or use of historic properties. The APE encompasses 35 acres to account for ground-disturbing activity described in the Project Description section. A map of the APE is indicated on Figure A.3. The FAA is planning to provide Airport Improvement Program funding as well as an Airport Layout Plan approval, actions which constitute a Federal undertaking for this project. Due to the isolated location of project activities with no activities occurring between locations, the APE is discontinuous and consists of four APE parcels: the “Terminal APE,” the “Glide Slope APE,” the “Runway Safety Area APE,” and the “MALSR APE.” The built environment is only present in the “Terminal APE.”

5. Results of Consultation

Oregon Preservation Officer

The FAA initiated consultation with the Oregon State Historic Preservation Office (SHPO) to confirm delineation of the APE on December 7, 2018, and received concurrence on December 26, 2018.

Native American Consultation

The FAA initiated consultation directly with the Coquille Tribe and the Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians, to confirm delineation of the APE and solicit input. Tribal monitors were provided to assist with archeological survey.

Public Involvement Outreach

Mead & Hunt initiated public outreach participation with the Coos County Historical Society, Coquille Valley Historical Society, City of North Bend, and Coos County Planning Department. As of the date of this report, no responses were received.

Consultation is ongoing as these parties review the results of these studies. Copies of the letters and correspondence are available upon request.

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Figure A.3: APE map.

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6. Application of the National Register Criteria for Evaluation

The National Historic Preservation Act established the National Register, which is the official list of districts, sites, building, structures, and objects significant in American history, architecture, archaeology, engineering, and culture. The *National Register Criteria for Evaluation* provides guidance on how a property can be significant in one or more of these categories at the local, state, or national level. To be listed in the National Register, a property's significance must be demonstrated by one or more of the following criteria:

- A. Association with events or activities that have made a significant contribution to the broad patterns of history
- B. Association with the lives of persons significant in our past
- C. Association with the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, possesses high artistic values, or represents a significant and distinguished entity whose components may lack individual distinction
- D. Holds the potential to provide important information about prehistory or history

To qualify for listing in the National Register, properties generally must be at least 50 years old, possess historical significance, and retain physical integrity as outlined in National Register Bulletins, *How to Apply the National Register Criteria for Evaluation*, in addition to *Guidelines for Evaluating and Documenting Historic Aviation Properties*. For the purposes of this report and to prevent the recommendations from being outdated once anticipated construction activities commence, this effort identified archaeological and historical resources within the APE at least 45 years in age in addition to properties meeting the 50-year guideline of the National Register.² Identified resources were then evaluated for significance and integrity to determine if they qualify for listing in the National Register following the *National Register Criteria for Evaluation*.

Section 106 and implementing regulations in 36 Code of Federal Regulations (CFR) Part 800 require that federal agencies take into account the effects of actions on historic properties, and if so, develop and evaluate alternatives that avoid, minimize, or mitigate adverse effects an action may have on historic properties. Historic properties include those listed in, formally determined, or considered eligible for listing in, the National Register. Regulations in CFR Part 800.2 (c) and (d) require consultation with a Tribal Historic Preservation Officer (THPO) where appropriate as well as consultation with local and state government with jurisdiction over areas where the undertaking occurs as well as individuals with demonstrated interests in the undertaking. Section 106 applies to actions of federal lands, require a federal permit, or that utilize in part or in whole federal approval or funding. The regulations that govern

² The 50-year age guideline of the National Register allows historical perspective in which to evaluate the significance of properties. For the purposes of this study, the time frame extends to 45 years to consider properties within the APE that will reach the 50-year age guideline of the National Register during project development and construction.

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the Section 106 review process require the FAA consult with the Coquille Tribe and the Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians.

7. Application of the Criteria of Adverse Effect

Section 106 requires the application of the criteria of adverse effect (per 36 CFR Part 800.5(a)(1)-(2)) when a proposed action will affect a historic property. Examples of adverse effects include physical destruction or damage; alteration not consistent with the Secretary of the Interior's Standards; relocation of a property; change of use or physical features of a property's setting; visual, atmospheric, or audible intrusions; neglect resulting in deterioration; or transfer, lease or sale of a property out of Federal ownership or control without adequate protections.

As outlined in Section 8. Summary of Findings and Recommendations, no historic resources in the built environment were identified in this survey. If however, historic artifacts are inadvertently discovered within the project area, the Unanticipated Discovery Plan for Cultural Resources and Human Remains in Section B. 5.D of this report should be implemented during excavation work.

8. Summary of Findings and Recommendations

Field survey and National Register evaluation of archaeological resources and historical resources in the built environment were coordinated but conducted separately. Survey methodology, research design, and detailed analysis for these activities are found in Sections B and C, respectively.

The objective of this study is to determine if archaeological or historical resources in the built environment are present within the APE. If so, to complete an evaluation to determine if they qualify for inclusion in the National Register; determine if the proposed project and alternatives has any adverse effects to properties that qualify for listing in the National Register; and, if so, resolve any adverse effects.

Identification and evaluation efforts found no archaeological resources and historical resources within the APE listed in or that qualified for listing in the National Register.

- Archaeological resources – Transect Archeology found no discrete historic “below ground” archaeological sites or features eligible for inclusion in the National Register.
- Historical resources – Mead & Hunt identified and documented six resources at least 45 years in age within the APE that were documented on inventory forms, evaluated, and are recommended not eligible for listing in the National Register. Mead & Hunt also evaluated a group of related buildings within and immediately adjacent to the buildings in the APE along with the Airport itself, collectively, for their potential to comprise a historic district. No districts were identified in or immediate to the APE.

Therefore, this report recommends a finding of *no historic properties affected* under Section 106.

Further discussion is provided below.

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A. Archaeological Resources

Transect Archeology conducted an intensive pedestrian archeological survey on three parcels at the Airport (a total of 26 acres), which included shovel testing to sample the subsurface sediments. The three parcels are: the “Terminal APE” (21-acres), the “Glide Slope APE” (3 acres), and the “Runway Safety Area APE” (2-acres).

The survey identified a widespread scatter of WWII-era debris incorporated into the sandy fill sediments of the runway landform. The ubiquitous scatter of WWII-era debris incorporated into the runway sediments were noted, but not formally recorded as a historic archaeological site. No WWII-era features with any integrity or historic significance were identified in the three APE parcels. The scatter of fragmentary WWII-era debris incorporated into the runway sediments is not a significant cultural resource and does not require special protections.

Archaeological monitoring of runway-adjacent trenching associated with a Wind Profiling Radar in 2015 (SHPO# 27881) identified flecks of marine clam shell within a buried “original surface” approximately 36 inches below the surface. The 2015 recommendations were to avoid excavations below 36-inches deep in the vicinity of the buried shell. The 2019 survey identified a similar light scatter of marine clam shell buried within the fill materials of the Runway Safety Area APE. The shell identified buried in the Runway Safety Area APE also contained small flecks of charcoal (or decomposed wood), and a possible micro-fragment of chert flake shatter. Within the Runway Safety Area APE, the fill sediments below 40 cm deep flecked with clam shells, charcoal, and a possible tiny fragment of chert shatter debitage, may have been “borrowed” from a local unknown archaeological shell midden site. The shell in the fill may be from an archaeological site seismically sunken within Coos Bay, or from the tidal islands that once dotted the shoreline leading to Pony Slough prior to early WWII-era airfield construction. The shell buried within the Runway Safety Area APE is not definitively cultural in nature, but the potential exists for the deposit to be a re-deposited shell midden. Caution is warranted with shell and charcoal flecked fill deposits at the Airport given the fact that there was an ethnographic Coos village (*Haht-sa*) from which human remains may have been collected in the 1950s (Personal Communication, January 2019 email from K. Rippie) that has not been re-located.

The survey team identified buried layers of dark-brown, organic-rich, “rotten smelling” sediment in shovel tests within the southeast corner of the Terminal APE. The buried dark layer likely represents the original tidal surface upon which dredged sandy fill materials were spread during the early WWII Airport construction phase. It is likely that the original tidal surface is buried approximately 60-cm below the surface near the southeast corner of the Terminal APE.

The survey team did not locate the ethnographic Coos village (*Haht-sa*) described in the original T-Sheet map notes (S. Byram, Personal communication 2018). The exact location of the Coos village site is not yet known. A buried shoreline under the Airport “hardscape” could contain elements of the *Haht-sa* Coos Tribe village, or associated features such as fish weirs, midden concentrations, fishing areas, etc. Human remains (turned over to the Coquille Tribe) said to have been found in the vicinity of the Airport in

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the 1950s may be associated with *Haht-sa*. *Extreme* care should be exercised when ground disturbances are planned in the vicinity of 1950s era developments in the vicinity of the Airport.

Transect Archeology found no discrete historic “below ground” archaeological sites or features eligible for inclusion in the National Register. Transect Archeology recommends the FAA develop a monitoring plan with the Coquille Tribe and Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians for deep excavations in the Terminal and Runway Safety Areas APE’s, and for excavations under the “hardscape” environment of the Terminal APE. In addition, if prehistoric and historic artifacts, or human remains, are inadvertently discovered within the proposed project area, the *Unanticipated Discovery Plan for Cultural Resources and Human Remains* must be followed.

Excavations deeper than 60 cm below the surface under the existing Airport “hardscape” surfaces in the Terminal APE should be monitored by an archaeologist or Tribal monitor. Excavations deeper than 40 cm (or excavations into shallower clam-shell flecked sediments) in the Runway Safety Area APE shall be monitored by an archaeologist, or Tribal monitor from the Coquille Tribe and/or Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians. Monitoring of excavations exceeding 160 cm deep is recommended in the vicinity of Shovel Tests #1-13 in the exposed sediment areas northeast section of the Terminal APE. Archaeological monitoring shall occur for excavations exceeding 210 cm in the vicinity of Shovel Tests #16-24 (Figure B.8) in the north-central Terminal APE. Archaeological monitoring is not required in the Glide Slope APE. Deep auger testing failed to locate any original sediment on the fill landform. The unanticipated discovery plan can be utilized if the deeply buried (200 cm below surface) metal object identified in Shovel Test #30 (Figure B.9) is historic in age.

See Section B for a detailed discussion of archeological resources.

B. Historical Resources (Built Environment)

The historical resources survey identified no properties that have been previously determined or considered eligible by the Oregon SHPO for listing in the National Register or listed in the Oregon Historic Sites Database.

Six historical resources at least 45 years in age within the APE are recommended not eligible for listing in the National Register due to lack of significance and/or a loss of integrity. In addition, a group of buildings dating from c.1943 to the 1980s within and immediately adjacent to the APE was examined collectively for its potential to comprise a historic district. Applying the National Register Criteria for Evaluation (outlined in Section A.6), no district was identified in or immediate adjacent to the APE. Mead & Hunt also considered whether the larger Airport itself may constitute a historic district, and no district was identified. No further work pursuant to Section 106 is recommended for historical resources (built environment) within the APE. Figure C.8 provides a map of these resources in relation to the Terminal APE.

See Section C for a detailed discussion of identification and evaluation of historical resources in the built environment within the APE.

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Section B.
Archaeological Resources (Transect Archaeology)

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Section B Archaeological Resources

1. Objective

This section documents pre-field archaeological research and pedestrian archaeological survey procedures that were conducted to aid in the Section 106 compliance process. The cultural resource consultant Transect Archaeology of Ocean Park, Washington, completed the survey and report for Mead & Hunt, and the Airport. Transect Archaeology surveyed three parcels at the Airport (a total of 26 acres). The three parcels are: the “Terminal APE” (21-acres), the “Glide Slope APE” (3 acres), and the “Runway Safety Area APE” (2-acres). All ground disturbance is anticipated to occur within the three APE parcels. The goal of the survey was to locate all discoverable sites within, and adjacent to, areas directly affected by ground disturbance activities within the APE parcels shown in Figures B.1 and B.2.

2. Setting

A. Environment

The survey area is visible on the Empire and North Bend 7.5-minute quadrangle maps, and is located in Coos County, Oregon. The three survey area parcels are located adjacent to runways of the Southwest Oregon Regional Airport situated on the south shore of Coos Bay at the western edge of the community of North Bend, Oregon. Coos Bay is part of the estuary mouth of the Coos River. The survey area vicinity map is shown in Figure B.1. The three APE parcels represent the areas of anticipated ground disturbance within the APE, and were established with consultations between the Airport, Mead & Hunt, and the FAA.

The Airport is situated on the southern shore of Coos Bay approximately 3.5 kilometers east of the Pacific Ocean coast and the sand-dune spit (North Spit) protecting the lower Coos River (Coos Bay). Pony Slough, a salt water marsh landscape, extends along the eastern boundary of the Airport. Jordan Cove is located across the bay from the Airport, on the north shore of Coos Bay. The Airport runways are built primarily on early WWII-era man-made landforms created from sandy fill sediments dredged from Coos Bay. The sands that form most of the flat Airport runway landforms are fill materials covering the original tidal and estuary landscape of Coos Bay, Pony Point, and Pony Slough. The man-made survey area is flat, with an average elevation of approximately 16.4 feet. Surface disturbance is ubiquitous throughout the Airport survey area. Photographs of the survey area are illustrated in Figures B.3, B.4, and B.5.

The airport runway was built almost entirely on a bed of WWII-era dredged sand fill materials. As such, historic survey and topographic maps dating to before WWII were used to estimate the shape and location of the pre-airport development “Pony Point” shoreline. Figure B.6 illustrates the relationship of the three survey area parcels to mapped shorelines from 1862 and 1898 survey maps.

The Airport survey area exhibits no completely natural unmanaged patches of vegetation. The non-paved sediments have a sparse “natural” understory/ground cover consisting of grasses, lichen/moss, bear berry, sandbur, clover, lupine, Scotch broom, and plantain. In the paved portions of the survey area, ground visibility was 0 percent. Ground visibility varied greatly within the unpaved areas.

Section B Archaeological Resources

The survey team did not observe any large wild animals within the runway survey areas, but hawks, gulls, and crows were observed. The gulls and crows drop clams, and small shiny objects, on the runways to break the shells and access the meat.

B. Cultural Setting

(1) Prehistory

Recent archaeological research on the Oregon coast (Moss and Erlandson 1998; Davis et al. 2004) and interior (Jenkins et al. 2012) suggest that pre-Clovis Native people were well established in the Pacific Northwest region by the end of the Pleistocene. The Coos River estuary is essentially directly on the hypothetical Pacific Coast route for the initial occupation of the North American continent. The resilient and stable Glade Tradition appears to have developed from Pleistocene “Western Stemmed” traditions. In northern Oregon and Washington coastal regions, the Early Holocene Cultures developing from the Pleistocene stemmed and fluted traditions are typically called “Youngs River Complex” or “Olcott Complex,” and are related to the “Cascade Phase” of the Plateau. Incomplete survey and testing data coupled with monumental coastal landscape changes related to eustatic sea-level rise from the Late Pleistocene to the Middle Holocene has resulted in a dearth of early coastal sites data. The notion that Early Holocene cultures of the coast were oriented toward terrestrial landscapes (rather than coastal and estuary landscapes) is likely derivative of this data bias. The Early and Middle Holocene coastal cultures likely did have a strong orientation toward estuary resources.

Middle and Late Holocene occupations of coastal landscapes similar to those surrounding Coos Bay are present at Tahkenitch Landing (Minor and Toepel 1986), the Neptune Site (Barner 1982; Zontek 1983), and the Hauser Site (Minor and Greenspan 1998). The villages and localities preserved within the cultural knowledge of the local tribes typically correspond to archaeological sites from the Middle and Late Holocene. A wide spectrum of different types of activities are represented at these later pre-contact sites; fishing, canoe building, habitation, and shellfish processing are only a small sample of the types of pre-contact and ethnographic period sites that could potentially exist on the historic shorelines of Coos Bay.

Periodic tectonic subsidence associated with large earthquakes punctuates the epochs-old trend of coastal uplift on the southern Oregon coast (Witter 1999). The Pacific Ocean coastline, the barrier spit landscapes, and the path of the Coos River have all changed throughout the Pleistocene and Holocene. Eustatic and isostatic sea-level changes (Byram 2002; Kelsey et al. 2002; Tveskov and Erlandson 2003; Minor 2004) have impacted pre-contact archaeological sites in the Coos, Coquille, and all other estuaries on southern Oregon Coast. Changes in sea level and the coastal landform over the last 20 thousand years has resulted in a modern landscape in which some once-terrestrial pre-contact Native American sites have been submerged within Coos Bay, while other ancient near-coastal sites have been slowly tectonically uplifted above their original relative sea level position. Terrestrial *and* tidal landscapes surrounding the APE can potentially contain pre-contact archaeological sites.

Section B Archaeological Resources

(2) Native Peoples

The Airport APE is within the homeland of the Hanis Coos, one of two bands of the Coos Tribe. Ethnographic and linguistic works that outline the lifeways of the Hanis and Miluk Coos include: Byram (2002; 2006), Drucker (1934), Frachtenberg (1913,1914), Harrington (1942), Jacobs (1939), Tveskov (2000), Wasson (2001), and Zenk (1990). The Hanis Coos belong to the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians. The Coquille Tribe and The Confederated Tribes of the Siletz Indians also have ancestors and families that utilized the landscape surrounding Airport APE.

While each band had its own dialect, there were two different Native American language families used in the Coos River and Coquille River regions. The Hanis and Miluk Coos languages are part of the Penutian language family, while the Upper Coquille “Tututni” dialects are part of the Athabaskan language family. The Penutian language family is the older of the two languages in the region; the Athabaskan languages were introduced to the region from northern migrants in the Late Holocene. Connolly (1986) has described three archaeological culture complexes of the Southern Oregon coast: the long and stable Glade Tradition, the Siskiyou Pattern, and the Gunther Pattern. The Glade Tradition is reflective of the continuous presence of Penutian speaking bands on the Northwest Coast, while the Gunther Pattern is reflective of the influx of migrating Athabaskan bands in the Late Holocene.

Ethnographic information about the landscape surrounding the Airport has been preserved from historic interviews with Hanis Coos Elder Jim Buchanan. Don Whereat, and his daughter Patty Whereat Phillips, have shared local Coos Tribe place-name information from historic interviews with Mr. Buchanan. Don Whereat (2010:28) states, “Mahawgwin was the general name for the North Bend area. One other village of note was *Haht-sa*, where the airport is now.” Patty Whereat Phillips (2014) writes on her Coos language blog, “Pony Slough itself was called *Tltes* or *Hlides*. Buchanan said there was a village on Pony Slough called *Hlwahich*, meaning cattail place. There are still some pretty good cattail patches in Pony Slough”. Whereat Phillips (2017:6) further describes the occupations located in the vicinity of the Airport: “The region known as Bangor and the North Bend airfield (created mainly by fill) was known as *Hattsa*. Pony Slough itself was known as *Hltes*, or *Tltes*. Jim Buchanan said there was a village on this slough called *Hlwahich*, from the plant *hlwai*, cattail. Even today there are large stands of cattails growing in this slough. At the south end of what is today the McCullough Bridge, *Da'nis* was said to be one of the larger villages, and much of its remains were destroyed when the bridge was built in the 1930s.”

Coos Elder Jim Buchanan described many Hanis Coos settlements and procurement/processing areas surrounding Coos Bay. Many of the localities described by Buchanan have been identified by archaeological features, artifacts, and debris, and are recorded as pre-contact archaeological sites. Pre-contact villages, fishing sites, fish weirs, and debris scatter sites are included in the diverse spectrum of known pre-contact archaeological sites surrounding Coos Bay and the Airport APE. Many of the places that Mr. Buchanan described have not yet been identified by archaeologists. This is the case with the village “*Haht-sa*” (reported to be at the airport locality), and the village “*Hlwahich*” (located on Pony Slough). The village “*Haht-sa*”, may be the Native American occupation described in the 1862 T-sheet Station note maps studied by Scott Byram (Personal communication 2018). No site form exists for the Oregon SHPO GIS polygon for the *Haht-sa* village ethnographic and contact-period site. The fact that Hanis Coos names exist for Native American settlements at the Airport and Pony Slough strongly suggest that archaeological sites are present in the vicinity of the APE that have not yet been identified.

Section B Archaeological Resources

(3) Euroamerican History

A detailed contextual summary of the history of the Airport is included in Section C of this report. While early twentieth century aviation technology had reached Coos Bay by 1912, developments associated with the construction of the 1935 North Bend Municipal Airport, and its expansion into the Naval Auxiliary Air Station (NAAS) during the early WWII era, contributed most the present Airport landscape. The airport runways and hangar structures are built on fill sediments that were deposited on the shoreline and tidelands of Pony Point during the pre-war and early WWII era. The 2019 archaeological survey team expected to identify artifacts and features associated with the WWII era.

In 1947 the NAAS returned the Airport property to the city of North Bend, and commercial use of the airport was resumed. West Coast Airlines provided passenger and commercial flights from the Airport. Many adults living in North Bend remember the early December 2012 fire that demolished a large 1943 WWII hangar that was once situated in the central portion of the Terminal APE. Cement elements associated with the burned hangar were not observed within the survey area parcel; a new hangar was constructed approximately 150 feet southwest of the 1943 hangar.

3. Previous Studies

Lyle Nakonechny, of Transect Archaeology, thoroughly reviewed the previous Oregon online SHPO maps and site files. The author reviewed cultural resource survey, archaeological testing, and monitoring reports that had occurred within a one-mile radius of the APE. As previously noted, there are many known archaeological sites in the Coos Estuary. The previous survey and site data are summarized here in three groups divided by location. Data is summarized for (1) the Airport landscape itself, (2) the peninsula and North Point landform located east of Hltes (Pony Slough), and (3) for the landscape located north of the Airport across the Coos River (inclusive of Jordan Cove). The previous survey reports reviewed by the team prior to the fieldwork are summarized in Tables B.1 through B.3. The known archaeological sites in the three regions are summarized in Tables B.4 through B.6.

One of the pre-recorded site areas on file with the Oregon SHPO is an ethnographic period Coos Tribe village that was described in the notes of the earliest 1862 "T-Sheet" map of Coos Bay (Personal Communication with Scott Byram, April 2018). The notes from the earliest map of Coos Bay mention a Native American village on the shoreline west of Pony Point. Previous archaeological work has not identified definitive evidence of the ethnographic site, though monitoring of runway-adjacent trenching in 2015 uncovered a natural ground surface flecked with shell (SHPO #27881). Historic records and amateur finds suggest there is an ethnographic village located somewhere on the Pony Point landform where the airport was built. The ethnographic Coos Tribe village "Haht-sa" has not yet been re-located.

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Archaeological Resources

Table B.1: Survey and Monitoring Reports in the Airport Area (Oregon SHPO Data)*

| TYPE | SHPO FILE# | REPORT TITLE |
|-------------|-------------------|---|
| Survey | 24556 | Cultural Resources Assessment for the Phase II Air Traffic Control Tower Site, Southwest Oregon Regional Airport, Coos County, Oregon: Addendum Report* |
| Survey | 27881 | Cultural Resources Monitoring Report for the Section 106 Cultural Resources Review for the Installation to Wind Profiling Radar, North Bend, Oregon |
| Survey | 60 | Archaeological Survey of Roadway Access to Industrial Park |
| Survey | 19971 | Cultural resources Report for the Airport Industrial Park, North Bend* |
| Survey | 20346 | Cultural Resources Inventory for Phase I of the North Bend Municipal Airport Expansion Project, Coos County, Oregon* |
| Survey | 20820 | Cultural Resources Inventory for Phase II of the Southwest Oregon Regional Airport Expansion Project, Coos County, Oregon* |
| Survey | 17647 | An Archaeological Survey of Proposed North Bend Airport Safety Area Modification for Runway 13-31, Coos County, Oregon |

**Denotes an Architectural History component*

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Table B.2: Survey and Testing Reports East of Pony Slough (Oregon SHPO Data).

| TYPE | SHPO FILE# | REPORT TITLE |
|-------------|-------------------|---|
| Survey | 53 | Letter Report: Water Line from McCulloch Bridge Around Simpson Heights to the intersection of Sheridan and Montana Streets |
| Survey | 20611 | Archaeological Survey of Bridge 01950 (US highway 101 over the California-Oregon Railroad in North Bend), Coos County |
| Survey | 21096 | Archaeological Investigations at the McCoullough (Coos Bay), Bridge Site (35CS24), Coos County, Oregon |
| Survey | 22360 | Archaeological Survey of the North Bend Waterfront (Harbor Avenue) Project, City of North Bend |
| Survey | 24463 | Archaeological Survey of the Ocean Terminals Dock Facility Retrofit Project, City of North Bend, Coos County, Oregon |
| Survey | 735 | Letter Report: Coos Bay Projects |
| Survey | 29081 | Results of the Archaeological Subsurface Testing along Chappell Parkway, Coos County, Oregon |
| Survey | 29499 | Pacific Connector Gas Pipeline Cultural Resources Survey - Coos, Douglas, Jackson, and Klamath Counties: 2017 Cultural Resources Addendum |

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Table B.3: Survey, Monitoring, and Testing Reports North of the Airport (Oregon SHPO Data).

| TYPE | SHPO # | REPORT TITLE |
|-------------|---------------|---|
| Survey | 27881 | Cultural Resources Monitoring Report for the Section 106 Cultural Resources Review for the Installation to Wind Profiling Radar, North Bend, OR. |
| Survey | 25809 | Pacific Connector Gas Pipeline Project Cultural Resources Survey, Coos, Douglas, Jackson, and Klamath Counties, OR. |
| Survey | 25809 | Pacific Connector Gas Pipeline Project Cultural Resources Survey, Coos, Douglas, Jackson, and Klamath Counties, OR. |
| Survey | 25809 | Pacific Connector Gas Pipeline Project Cultural Resources Survey, Coos, Douglas, Jackson, and Klamath Counties, OR. |
| Survey | 29499 | Pacific Connector Gas Pipeline Cultural Resources Survey - Coos, Douglas, Jackson, and Klamath Counties: 2017 Cultural Resources Addendum |
| Survey | 5743 | Report on Cultural Resources in the Proposed Port of Coos Bay Access Road Corridor |
| Survey | 7607 | Port of Coos Bay Access Road Corridor North Bay Marine Industrial Park |
| Survey | 20776 | Cultural Resources Survey for the Jordan Cove Energy Project at Coos Bay, OR. |
| Survey | 5740 | Henderson Marsh Mitigation |
| Survey | 25809 | Pacific Connector Gas Pipeline Project Cultural Resources Survey, Coos, Douglas, Jackson, and Klamath Counties, OR. |
| Survey | 25809 | Pacific Connector Gas Pipeline Project Cultural Resources Survey, Coos, Douglas, Jackson, and Klamath Counties, OR. |
| Survey | 26190 | Pacific Connector Gas Pipeline Project Cultural Resources Survey, Coos, Douglas, Jackson, and Klamath Counties, Oregon: 2013 Cultural Resources Addendum #2 |
| Survey | 26868 | Industrial Wastewater Pipeline Subsurface Survey |
| Survey | 26872 | Archaeological Survey of the South Dunes Power Plant Northern Strip |
| Survey | 5741 | Coos Bay/North Bend Pipeline |
| Survey | 28379 | Jordan Cove and Henderson Marsh: Historical Investigations at Coos Bay, OR. |
| Survey | 29499 | Pacific Connector Gas Pipeline Cultural Resources Survey - Coos, Douglas, Jackson, and Klamath Counties: 2017 Cultural Resources Addendum |

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Table B.4: Known Archaeological Sites in the Airport Area (Oregon SHPO Data).

| TYPE | SITE # | NRHP STATUS | DESCRIPTION | SHPO FILE# | REPORT TITLE |
|-------------|---------------|--------------------|---|-------------------|---|
| Site | NA | Eligible | Fuse and Detonator Magazine; WWII | 19971 | Cultural resources Report for the Airport Industrial Park, North Bend |
| Site | NA | Eligible | Small Arms Magazine: WWII | 19971 | Cultural resources Report for the Airport Industrial Park, North Bend |
| Site | 35CS00222 | Unevaluated | Historical Electrical Transformer Site; WWII | 20820 | Cultural Resources Inventory for Phase II of the Southwest Oregon Regional Airport Expansion Project, Coos County, Oregon |
| Site | NA | Unevaluated | Reported village and midden site. Station notes from 1862- contact Scott Byram for details. | NA | |

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Table B.5: Known Archaeological Sites East of Pony Slough (Oregon SHPO Data).

| TYPE | SITE # | NRHP STATUS | DESCRIPTION | SHPO FILE# | REPORT TITLE |
|-------------|---------------|--------------------|---|-------------------|---|
| Site | | | Curlew Shipwreck, 3/6/1912 | | |
| Site | | | | 29081 | Results of the Archaeological Subsurface Testing along Chappell Parkway, Coos County, Oregon |
| Site | 35CS 00024 | Listed | Site disturbed by bridge construction | | |
| Site | 35CS 00036 | Unevaluated | | | |
| Site | 35CS 00024 | Listed | C-14 data collected | 21096 | Archaeological Investigations at the McCullough (Coos Bay), Bridge Site (35CS24), Coos County, Oregon |
| Site | | | Reported village and burial site looted by Marcus Searle in 1930s. | | |
| Site | 35CS 00024 | Listed | | 23296 | National Register of Historic Places Multiple Property Documentation Form |
| Site | 35CS 00024 | Listed | | 23296 | National Register of Historic Places Multiple Property Documentation Form |
| Site | 35CS 00024 | | Shell midden site update by Ross in 1975; disturbed by bridge construction. | 26753 | Archaeological Survey of State Park Lands Along the Oregon Coast |
| Site | 35CS 00036 | | Shell midden site initially recorded by Ross in 1975. | 26753 | Archaeological Survey of State Park Lands Along the Oregon Coast |
| Site | 35CS 00317 | Unevaluated | | 29081 | Results of the Archaeological Subsurface Testing along Chappell Parkway, Coos County, Oregon |

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Table B.6: Known Archaeological Sites North of the Airport (Oregon SHPO Data).

| TYPE | SITE # | NRHP STATUS | DESCRIPTION | SHPO FILE# | REPORT TITLE |
|------|------------|--------------|---|------------|---|
| Site | | | Possible village site as per Le Gilson's map | | |
| Site | | | Isaac Barner shell scatter | 490 | Letter Report - Jordan Cove Dredging |
| Site | | | Isaac Barner shell scatter | 490 | Letter Report - Jordan Cove Dredging |
| Site | 35CS 00026 | Unevaluated | Flakes, shell and some charcoal | Null | |
| Site | 35CS 00221 | Unevaluated | Henderson Ranch Site; historic 1860-1960, possible prehistoric component | 20776 | Cultural Resources Survey for the Jordan Cove Energy Project at Coos Bay, Oregon |
| Site | | | Reported lithic scatter (shell midden according to Pullen) under dredge spoils; Ron Stubbs report | 20776 | Cultural Resources Survey for the Jordan Cove Energy Project at Coos Bay, Oregon |
| Site | | | Historic NA burial area; SP Railroad cut through site in middle 20th century | 20776 | Cultural Resources Survey for the Jordan Cove Energy Project at Coos Bay, Oregon |
| Site | | | Reported midden and villages site now under pavement | 20776 | Cultural Resources Survey for the Jordan Cove Energy Project at Coos Bay, Oregon |
| Site | | | Reported Native American burial area | 20776 | Cultural Resources Survey for the Jordan Cove Energy Project at Coos Bay, Oregon |
| Site | 35CS 00227 | Unevaluated | Jordan site; prehist shell midden & hist refuse scatter | 21584 | Pacific Connector Gas Pipeline Project Cultural Resource Survey, Coos, Douglas, Jackson, and Klamath Counties, Oregon |
| Site | 35CS 00221 | Not Eligible | | 26867 | Henderson Ranch Site 35CS221 Phase II Evaluation Testing, Coos County, OR |

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While archaeological materials associated with the ethnographic village have not been identified by a formal survey, archaeological materials have been found by amateur collectors near the airport in the past. Coquille Tribe THPO Kassandra Rippie (Personal Communication email, January 2019) indicated in a project email that archaeological human remains (a cranium) had been turned over the Coquille Tribe by the nephew of a man who had performed construction in the Airport region in the 1950s.

Two previously recorded WWII-era features (a Fuse and Detonator Magazine and a Small Arms Magazine) associated with the wartime airfield were not searched for because they were mapped far from the three parcels that constitute the 2019 APE. The location of a WWII airport facility (a Historical Electrical Transformer Site) was once located west of the Airport tower, west of the Terminal APE parcel. The 2019 archaeological survey did not locate any elements of the transformer site debris; it appears to have been destroyed by previous modern runway improvements.

Pre-field research helped the team develop expectations about what types of sites could be identified by the survey. The survey team was aware that the area could potentially contain evidence of pre-contact utilization incorporated into the fill sediments or buried under the WWII-era runway fill. The survey team believed that historic artifacts or features associated with the WWII-era Airfield could potentially exist within the survey area. The survey team utilized historic photographs (1942, 1954, and 1969) to identify the location of historic WWII-era features that could potentially exist within the survey area parcels, and to understand the progression of change to the man-made airport landscape.

4. Survey Methodology and Findings

A. Methods

A team of two archaeologists (Lyle Nakonechny and Austin Ivers) surveyed the project area with the assistance of a monitor from either the Coquille Tribe (Todd Martin) or the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians (Mark Petrie), as well as a rotating group of friendly airport escorts and safety monitors. Lyle holds a doctoral degree in anthropology from Washington State University (2015), and Austin holds a B.A. in anthropology from Eastern Washington University (1992). The three parcels of the survey area were surveyed, and shovel tested by the archaeology team and Tribal monitors over five days (January 14-18, 2019). The weather presented variable survey conditions with two sunny days followed by three days of rain and wind, and an approximate temperature of between 40- and 55-degrees Fahrenheit.

The survey team performed an intensive pedestrian survey of the three APE parcels that are anticipated to be impacted by ground disturbing activities. The team utilized transects spaced approximately 3 meters apart to survey all of the unpaved areas within the three survey area parcels. The direction of survey transects is illustrated in Figure B.7.

The survey team was escorted by Airport personnel for all of the survey and shovel testing activities because the APE parcels are located directly adjacent to active taxiway and runway corridors. The paved roadway and runway surfaces were observed from adjacent unpaved landscapes, but pedestrian survey transects were not conducted over these 100-percent paved high-traffic modern transportation features.

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Roadways and cement covered areas outside of the secure runway/taxiway area were surveyed by the team. Land located under existing modern building foundations was not accessible to the team for pedestrian survey or shovel testing.

The survey team produced 25 shovel test pits within the 21-acre "Terminal APE", 14 shovel test pits in the "Glide Slope APE", and 4 shovel tests in the "Runway Safety Area APE". The shovel test pit sediments were screened through 1/8th-inch mesh. The locations of the shovel test pits are illustrated in Figures B.8, B.9, and B.10. The shovel test pits were approximately 40 cm in diameter and varied between 25 and 210 cm deep. The results of the shovel testing are summarized in Table B.7.

B. Findings

The Transect Archaeology survey team, and the monitors from the Coquille Tribe and Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians, identified a dispersed light scatter of 1940s-1950s era debris throughout the survey area parcels and surrounding Airport landscape. No distinct concentrations of WWII-era Airfield debris were identified, and no historic archeological sites were recorded. The survey did not identify WWII-era features in the survey area parcels. Lacking density, integrity, and intact context, the scatter of fragmented WWII-era metal, glass, ceramic, asphalt, and rubber/plastic debris incorporated into the surface fill of the entire Airport landscape, was noted, but not formally recorded as historic isolated finds or historic sites. Fragments of historic debris are ubiquitously incorporated into the runway fill sediments.

Archaeological monitoring of runway-adjacent trenching associated with a Wind Profiling Radar in 2015 (SHPO #27881) identified flecks of marine clam shell within a buried "original surface" approximately 36 inches below the surface. The 2015 recommendations were to avoid excavations below 36-inches deep in the vicinity of the buried shell. The 2019 survey identified a similar light scatter of marine clam shell buried within the fill materials of the Runway Safety Area APE. The shell identified buried in the Runway Safety Area APE also contained small flecks of charcoal (or decomposed wood), and a possible micro-fragment of chert flake shatter. Concentrations of shell were not identified within the fill sediments of the Terminal APE or the Glide Slope APE.

The survey team identified fragments of WWII-era historic debris in many of the shovel test holes. The results of the shovel testing are summarized in Table B.7. Positive shovel probes within the Terminal APE and the Glide Slope APE contained disturbed fill materials flecked with bits of rusted metal, fragments of clear and brown glass, cement and asphalt chunks, small lumber fragments, fragmented white ceramic dishware, coal clinker, plastic fragments, cigarette filters, and layers of gravel. Positive shovel probes within the Runway Safety Area APE contained fill layers flecked with clam shell and charcoal- materials that could have potentially been dredged from a cultural midden. The shovel probes created within the Runway Safety Area APE identified the same type of shell materials that were found in association with the 2015 Wind Profiling Radar project.

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Table B.7: Southwest Oregon Regional Airport Shovel Tests.

| ST# | APE Parcel | UTM E | UTM N | Cultural | DepthCM | Asphalt? |
|-----|-------------|--------|---------|------------|---------|----------|
| 01 | Terminal | 399080 | 4807996 | N | 117 | N |
| 02 | Terminal | 399087 | 4807984 | N | 140 | Y |
| 03 | Terminal | 399107 | 4807950 | N | 129 | Y |
| 04 | Terminal | 399118 | 4807935 | N | 103 | N |
| 05 | Terminal | 399129 | 4807917 | N | 100 | N |
| 06 | Terminal | 399150 | 4807879 | Y | 90 | N |
| 07 | Terminal | 399160 | 4807859 | Y | 95 | N |
| 08 | Terminal | 399173 | 4807837 | N | 105 | Y |
| 09 | Terminal | 399187 | 4807809 | N | 103 | N |
| 10 | Terminal | 399212 | 4807760 | Y | 103 | N |
| 11 | Terminal | 399220 | 4807743 | YFLARE | 160 | N |
| 12 | Terminal | 399230 | 4807724 | Y | 117 | Y |
| 13 | Terminal | 399240 | 4807711 | N | 130 | N |
| 14 | Terminal | 399278 | 4807640 | YFLARE | 110 | Y |
| 15 | Terminal | 399286 | 4807623 | Y | 110 | N |
| 16 | Glide Slope | 399022 | 4807824 | Y | 210 | N |
| 17 | Glide Slope | 399013 | 4807841 | Y | 110 | Y |
| 18 | Glide Slope | 399001 | 4807861 | Y | 110 | Y |
| 19 | Glide Slope | 398994 | 4807874 | N | 100 | N |
| 20 | Glide Slope | 398986 | 4807888 | Y | 110 | Y |
| 21 | Glide Slope | 398981 | 4807899 | N | 110 | N |
| 22 | Glide Slope | 398976 | 4807909 | Y | 110 | Y |
| 23 | Glide Slope | 398971 | 4807918 | N | 100 | N |
| 24 | Glide Slope | 398961 | 4807944 | N | 100 | N |
| 25 | Glide Slope | 398304 | 4807739 | N | 55 | Y |
| 26 | Glide Slope | 398285 | 4807719 | N | 55 | N |
| 27 | Glide Slope | 398266 | 4807695 | Y | 55 | Y |
| 28 | Glide Slope | 398227 | 4807708 | N | 110 | N |
| 29 | Glide Slope | 398218 | 4807676 | Y | 90 | Y |
| 30 | Glide Slope | 398186 | 4807686 | YDEEPMETAL | 210 | N |
| 31 | Glide Slope | 398181 | 4807657 | Y | 100 | Y |
| 32 | Glide Slope | 398149 | 4807663 | N | 100 | N |
| 33 | Glide Slope | 398139 | 4807634 | N | 110 | N |
| 34 | Glide Slope | 398102 | 4807638 | N | 110 | N |
| 35 | Glide Slope | 398089 | 4807605 | N | 90 | N |
| 36 | Glide Slope | 398056 | 4807612 | N | 110 | N |

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| ST# | APE Parcel | UTM E | UTM N | Cultural | DepthCM | Asphalt? |
|-----|--------------------|--------|---------|------------|---------|----------|
| 37 | Glide Slope | 398051 | 4807585 | N | 100 | N |
| 38 | Glide Slope | 398016 | 4807589 | N | 100 | Y |
| 39 | Runway Safety Area | 399571 | 4808573 | N | 25 | Y |
| 40 | Runway Safety Area | 399560 | 4808593 | YCLAMSHELL | 105 | Y |
| 41 | Runway Safety Area | 399586 | 4808594 | YCLAMSHELL | 120 | N |
| 42 | Runway Safety Area | 399639 | 4808578 | YCLAMSHELL | 110 | N |
| 43 | Runway Safety Area | 399650 | 4808558 | YCLAMSHELL | 45 | N |
| 44 | Terminal | 399208 | 4807579 | Y | 75 | N |

(1) Noted, But Not Formally Recorded Cultural Debris

Terminal APE

The pedestrian survey identified one historic 50-caliber machine gun bullet with attached fragments of brass casing on the surface of the Terminal APE. The location of the WWII ammunition debris is illustrated in Figure B.8. Figure B.11 is a photograph of the ammunition debris. The bullet was likely used in conjunction with a WWII airplane's Browning M2 machine gun. There is a suggestion of blue paint on the tip of the bullet that may indicate that it is an incendiary round (<http://www.nebraskaaircrash.com/50caliber.html>). The airport staff asserts that similar munitions are commonly found in the sediments of the airfield. The cartridge was documented, bagged, and provided to the airport manager for their historic collection.

Two rusting and crushed WWII-era artifacts found within the near-surface fill of shovel tests #11 and #14 resemble flare cartridge bases, but could be end-caps of batteries. The brass and rubber/asphalt artifact fragments (Figure B.12) are unmarked. The brass bases of the artifacts are 1-inch in diameter, but their original length is undetermined. The flat round bases have a round center perforation that is similar to the opening for a primer in the base of a shotgun shell, but there is also a small metal "tab" radiating from the central perforation.

The survey team identified buried layers of dark-brown, organic-rich, "rotten smelling" sediment in shovel tests within the southeast corner of the Terminal APE. The buried dark layer likely represents the original tidal surface upon which dredged sandy fill materials were spread during the early WWII Airport construction phase. Shovel tests #11 and #14 contained the dark layer. The approximate 7-cm to 10-cm thick dark layer was identified 60-70 cm below the surface in Shovel Tests #11 and #14. In addition to the dark layer indicative of an old tidal surface, Shovel Tests #11 and #14 display Fe rust-stained inclusions directly above the dark layers that likely represent decomposing vegetation that was growing from the buried surfaces. Shovel tests #11 and #14 are the only sub-surface tests that revealed layers resembling the original pre-Airport tidal surface under the WWII era fill sediments. It is likely that the original tidal surface is buried approximately 60-cm below the surface near the southeast corner of the Terminal APE.

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Glide Slope APE

The pedestrian survey identified one historic 50 caliber machine gun brass casing on the surface of the Glide Slope APE. Additionally, the team identified one fragment of amethyst glass on the surface of the Glade Slope APE. The amethyst glass may have been dropped onto the surface of the survey by a gull or crow bird. The glass is shiny and was resting on top of living vegetation. The locations of the WWII cartridge and amethyst glass are illustrated in Figure B.9. Figures B.13 and B.14 are photographs of the brass cartridge. The cartridge is head-stamped with the letters and numbers "M 43." The cartridge was likely produced by the Milwaukee Ordinance Plant in 1943 (<http://www.nebraskaircrash.com/50caliber.html>). The ammunition was likely used in conjunction with a WWII airplane's Browning M2 machine gun. The airport staff asserts that similar munitions are commonly found in the sediments of the airfield. The shell was documented, bagged, and provided to the airport manager for their historic collection.

The western half of the Glide Slope APE is situated on a modern runway-extension landform consisting of dredged sands. A deep auger probe (210 cm deep) in Shovel Test #30 revealed the presence of large sheet-metal debris buried 200 cm underground. The auger made metal-on-metal sounds at 200 cm depth in Shovel Test #30. It is likely that the metal debris was dumped over the western edge of the old runway before it was covered with fill sediments. There is something large and metal buried 200 cm below the location of Shovel Test #30 in the Glide Slope APE. The location corresponds to the approximate location of the original western terminus of the airfield. We hypothesize that historic or modern airport debris was dumped off the edge of the runway prior to the modern runway expansion project. Deep excavations in the vicinity Shovel Test #30 will likely encounter metal debris. The deeply buried metal debris may be associated with the WWII era airfield.

Runway Safety Area APE

The pedestrian survey identified one fragment of blue and white glaze "china" porcelain on the surface of the Runway Safety Area APE. The immediate landscape is covered with bird-dropped clam shells, and it is likely that a gull or crow dropped the shiny fragment of ceramic at the locality (perhaps mistaking it for a clam). The age of the ceramic is indeterminate; it is likely modern transferware. No WWII-era debris was identified within the Runway Safety Area APE. A 15-cm bed of compact gravel (possibly road gravel) was buried 10 cm below the surface in the southwest side of the Runway Safety Area APE.

Shovel testing within the Runway Safety Area APE revealed compacted gravels and broken asphalt in the top 30 cm. The top layer represents runway-adjacent gravel fill dating to the WWII era. Dredged sand fill is present below the runaway associated gravels. A layer of dredge fill sands flecked with gaper clam shell (Figure B.15) and 1-2 mm fragments of charcoal (or black-stained wood) is present buried under the gravel and top dredge sand fill. The top of the layer that contains large shell fragments is located approximately 30-120 cm below the surface within Shovel Tests #40-43. A small fragment of chert resembling lithic reduction shatter (Figure B.16) was identified approximately 40 cm below the surface from the shell-rich fill sediments in Shovel Test # 43. While not definitively cultural, the combination of clam shells (large fragments, many with valves), bits of black charcoal-like wood, and a possible fragment of lithic reduction debris, led the team to discontinue shovel testing through the shell-rich layer. The monitor from the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians concurred with our conservative approach to discontinue sub-surface testing in the Runway Safety Area APE without an

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established unanticipated discovery plan. A sample of shell and charcoal bits, and the possible micro lithic shatter debitage, were bagged and re-buried within Shovel Test #23 – the test from which they were recovered.

The results of shovel testing in the Runway Safety Area APE partially confirmed the findings of the 2015 archaeological monitoring associated with a Wind Profiling Radar installation (SHPO #27881). The 2015 monitoring identified a dark-stained original surface capping a layer flecked with shell at approximately 90 cm below the surface. The 2015 monitor recommended future archaeological monitoring for excavations below “36-inches” deep (approximately 90 cm). The shovel testing in 2019 did not identify any “original surface” or buried paleosol but did observe distinct layering in the dredged sand fill. There were dark organic-flecked sandy beds overlying clean sand beds – multiple massive lenses of dredged sediments dating to the early 1940s WWII runway construction phase. The layers of dredge-fill differ in color and texture (and amount of organics) depending on the parent material that was sucked up to build the runway. Within the Runway Safety Area APE, the fill sediments below 40 cm deep flecked with clam shells, charcoal, and a possible tiny fragment of chert shatter debitage, may have been “borrowed” from a local unknown archaeological shell midden site. The shell in the fill may be from an archaeological site seismically sunken within Coos Bay, or from the tidal islands that once dotted the shoreline leading to Pony Slough prior to early WWII era airfield construction. The shell buried within the Runway Safety Area APE is not definitively cultural in nature, but the potential exists for the deposit to be a re-deposited shell midden. Caution is warranted with shell- and charcoal-flecked fill deposits at the Airport given the fact that there was an ethnographic Coos village (*Haht-sa*) from which human remains may have been collected in the 1950s (Personal Communication, January 2019 email from K. Rippie) that has not been re-located.

Coos village (Haht-sa)

The 2019 archaeological survey and shovel testing did not re-locate the ethnographic Coos village (*Haht-sa*) described in the original T-Sheet map notes (S. Byram, Personal communication 2018). The exact location of the Coos village site is not yet known. Human remains may have been collected from the village site (or a different unknown locality) in the 1950s (Personal Communication, January 2019 email from K. Rippie).

While the 2019 survey team did observe living plants and animals that are part of the traditional uses of the local Tribes, the vast majority of sediments observed by the team were deposited onto the tide flats of Pony Point in the early 1940s and WWII years. The 2019 shovel testing identified an original shoreline surface buried under 60 cm of sand fill in the southeast corner of the Terminal APE.

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5. Recommendations

A. Archaeological Resources Recommended Not Eligible for Listing in the National Register

The 2019 survey did not identify any features or discrete concentrations of historic WWII debris in the three APE parcels. Two 50-caliber munitions artifacts and a fragment of amethyst glass (likely re-deposited by a bird) that were identified on the surface were noted, but not formally recorded. The WWII ammunition-related artifacts are reported by the Airport staff to be common artifacts found in the surface and near-surface sediments of the airfield. There is a general wide-spread scatter of fragmented WWII-era debris incorporated into the fill sediments examined in the APE parcels. Cement fragments, fragmented runway asphalt, rusted nails, rusted springs, clear and brown glass, munitions fragments, ceramic dish fragments, plastic fragments, coal clinker, and imported gravels were incorporated into the fill sediments of the shovel test probes. The man-made “anthosol” of WWII-era fill flecked with WWII-era debris likely caps most of the flat airport fill landscapes. The debris encountered by the 2019 survey lacked integrity but was characteristic of 1940s- and 1950s-era wartime, aviation, and habitation debris. No discrete historic “below ground” archaeological sites or features eligible for inclusion in the National Register were identified.

Deep auger testing at Shovel Test #30 in the Glide Slope APE (Figure B. 9) identified a large metal object (likely made of sheet metal) buried 200 cm below the surface. The metal object could potentially be WWII-era debris, but it is buried under what is likely modern fill (associated with modern runway expansion) rather than WWII-era fill.

B. Archaeological Resources Recommended Eligible for Listing in the National Register

There is a potential for elements of the ethnographic Coos Tribe village *Haht-sa* to be preserved under layers of sandy WWII-era Airport fill, but it has not yet been re-located. The 2019 survey identified what is likely the original tidal surface buried 60 cm below the surface in the southeast corner of the Terminal APE. It is likely that elements of the original tidal and shoreline surface of Pony Point are preserved under late 1930s and early 1940s fill sands in other parts of the Terminal APE that could not be sampled. It is possible that elements of the original shoreline are preserved under fill and capped by structures, roadway, taxiway, or other “hardscape” surfaces that could not be tested beneath as part of the survey. A buried shoreline under the Airport “hardscape” could contain elements of the *Haht-sa* Coos Tribe village, or associated features such as fish weirs, midden concentrations, fishing areas, etc. Human remains (turned over to the Coquille Tribe) said to have been found in the vicinity of the Airport in the 1950s may be associated with *Haht-sa*. *Extreme* care should be exercised when ground disturbances are planned in the vicinity of 1950s-era developments in the vicinity of the Airport. Excavations deeper than 60 cm below the surface under the existing Airport “hardscape” surfaces in the Terminal APE should be monitored by an archaeologist or Tribal monitor.

The dredged “slurry” of sandy fill, clam shell (Figure B.15), charcoal/black wood, and a generally non-diagnostic micro-fragment of chert (Figure B.16) that could potentially be reduction debris, may have

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been “borrowed” from a pre-contact or ethnographic period midden site within Coos Bay or under the Airport runway fill. A similar deposit of shell was identified in 2015 by archaeological monitoring associated with a Wind Profiling Radar installation (SHPO #27881). The 2015 recommendation of archaeological monitoring of excavations into the clam shell flecked sediments is re-iterated for the 2019 survey. Excavations deeper than 40 cm (or into shallower clam-shell flecked sediments) in the Runway Safety Area APE should be monitored by an archaeologist or Tribal monitor from the Coquille Tribe or Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians.

C. Application of the Criteria of Adverse Effect

Extreme care should be exercised when ground disturbances are planned in the vicinity of 1950s-era developments in the Airport region. Human remains have reportedly been exposed within that context, but the exact location of the burial find is still unknown. Excavations deeper than 60 cm below the surface under the existing Airport “hardscape” surfaces in the Terminal APE should be monitored by an archaeologist or Tribal monitor. Archaeological testing did not occur under cement and asphalt surfaces or under existing structures.

Similarly, monitoring should be utilized for excavations below 60 cm deep within exposed runway-adjacent sediments in the vicinity of Shovel Tests #14 and 15 (Figure B.8) in the southeast corner of the Terminal APE. Auger testing to 160 cm below surface in the northeastern non-paved Terminal APE landscape in the vicinity of Shovel Tests #1-13 (Figure B.8) did not identify any original buried surfaces in the fill. Monitoring of excavations exceeding 160-cm deep is recommended in the vicinity of Shovel Tests #1-13 in the exposed sediment areas northeast section of the Terminal APE.

Auger testing to 210 cm below the surface in the vicinity of Terminal APE Shovel Tests #16-24 revealed no original ground surfaces in the sandy fill. Archaeological monitoring shall occur for excavations exceeding 210 cm in the vicinity of Shovel Tests #16-24 (Figure B.8) in the north-central Terminal APE.

Excavations deeper than 40 cm (or excavations into shallower clam-shell flecked sediments) in the Runway Safety Area APE shall be monitored by an archaeologist, or Tribal monitor from the Coquille Tribe and/or Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians.

Archaeological monitoring is not required in the Glide Slope APE. Deep auger testing failed to locate any original sediments on the fill landform. The unanticipated discovery plan can be utilized if the deeply buried (200 cm below surface) metal object at Shovel Test #30 (Figure B.9) is historic in age.

The FAA should develop a monitoring plan with the Coquille Tribe and Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians for deep excavations under the “hardscape” environment of the Terminal APE. In addition, if prehistoric and historic artifacts, or human remains, are inadvertently discovered within the proposed project area, the *Unanticipated Discovery Plan for Cultural Resources and Human Remains* must be followed.

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D. Unanticipated Discovery Plan for Cultural Resources and Human Remains

The proposed project will include excavation into landforms that have the potential to contain a cultural resource. A cultural resource discovery could be prehistoric or historic artifacts. It is possible that buried human remains could be unexpectedly encountered. Archaeologists have examined and tested areas of anticipated ground disturbance; however, it is possible that unanticipated discoveries of prehistoric and historic artifacts or human remains will be made during excavation. This plan has been developed to establish the procedures to follow if prehistoric and historic artifacts or human remains are inadvertently discovered during proposed project activities.

Prehistoric and historic artifacts in the region usually consist of concentrations of clam shell and charcoal, flakes (chips) of stone, stone/bone/wood tools, concentrations of cobbles and charcoal, and concentrations of bone. Prehistoric artifacts have not been identified in areas of anticipated ground disturbance, but there is the possibility of unanticipated discovery. Testing did not occur under the Airport “hardscape” surfaces (runways, roads, buildings).

Historic artifacts at the Airport usually consist of buried ammunition, glass and bottles, dishes, old cans, rusted metal, and dark-rich soil, or burned soil. It is possible that the archaeology survey failed to identify an isolated buried historic artifact concentration (e.g., the location of a small buried ammunitions storage feature). There is a general scatter of WWII-era debris in the fill of the Airport runway. A single brass shell casing, or a single soda bottle are expected to be exposed by the project. The commonly dispersed WWII debris elements do not require special protections. A discrete concentration of ammunition or debris, an old foundation, a buried WWII airplane, etc., are the types of historic features that would require monitoring and documentation from an archaeologist, and/or a Tribal monitor.

Procedures

The following procedures are to be followed if an inadvertent discovery is made during the proposed project activities.

Step 1: Stop work

- *Prehistoric artifacts and historic artifact concentrations* – If anyone discovers suspected prehistoric artifacts or a concentration of historic artifacts during proposed project activities, all work adjacent to the discovery must stop. The location of the discovery should be secured to ensure no further impacts occur until the remaining steps in this plan are completed.
- *Human remains* – If anyone discovers suspected human remains during proposed project activities, all work adjacent to the discovery must stop. Human remains must be treated respectfully at all times. The location of the discovery should be secured to ensure no further impacts occur until law enforcement (sheriff/coroner) can secure the area and the remaining steps in this plan are completed.

Step 2: Notification (see *List of Contacts* below)

- *Prehistoric artifacts and historic artifact concentrations* – If discovered notify:
 - Oregon State Historic Preservation Office (OR SHPO)
 - Coquille Tribe THPO

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- Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians THPO
- *Human remains* – If discovered notify:
 - Coos County Sheriff and wait on-site for law enforcement to secure the site of the suspected discovery
 - OR SHPO
 - Coquille Tribe THPO
 - Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians THPO

Step 3: Documentation and evaluation

- *Prehistoric artifacts and historic artifact concentrations* – Need to be documented and a preliminary evaluation of National Register eligibility completed by a professional archaeologist. If the discovery is recommended to be historically significant, then steps to avoid or mitigate adverse effects must also be developed under Section 106 (per 36 CFR 800).
- *Human remains* – The coroner (with assistance of law enforcement personnel) will determine if the remains are human, whether the discovery site constitutes a crime scene, and will notify OR SHPO.

Step 4: Consultation

- *Prehistoric artifacts and historic artifact concentrations* – The documentation and evaluation of the historical significance of prehistoric and historic artifacts and steps to avoid or mitigate adverse effects must be provided to the OR SHPO, Coquille Tribe THPO, and the Tribes of the Coos, Lower Umpqua, and Siuslaw Indians THPO for review and concurrence. Section 106 requires that the documentation standards and post-review discovery process set forth in 36 CFR 800.11 and 36 CFR 800.13 be followed prior to resuming further ground disturbance activities in the discovery area.
- *Human remains* – Documentation of human skeletal remains and funerary objects will be agreed upon through the consultation process with the OR SHPO, the Coquille Tribe, and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians. When consultation and documentation activities are complete, construction in the discovery area may resume.

Construction may continue at the discovery location only after the process outlined in this plan is followed and the FAA has determined that compliance with state and federal laws is complete.

**Section B
Archaeological Resources****List of Contacts:****Federal Aviation Administration**

Sean Callahan, Environmental Specialist
2200 S 216th Street
Des Moines, WA 98198
Sean.Callahan@faa.gov
206-231-4143

US Army Corps of Engineers

Tyler Krug, Regulatory Project Manager
2201 N Broadway, Suite C
North Bend, OR 97459
Tyler.J.Krug@usace.army.mil
541-756-2097

Coquille Indian Tribe THPO

Kassandra Rippee, THPO
3050 Tremont Street
North Bend, OR 97459
THPO@coquilletribe.org
541-756-0904

Confederated Tribes of the Coos, Lower Umpqua & Siuslaw Indians

Stacy Scott, THPO
Department of Natural Resources
1245 Fulton Avenue
Coos Bay, OR 97420
sscott@ctclusi.org
Tel: 541-888-7513
Fax: 541-888-2853

Oregon State Historic Preservation Office (SHPO)

Dennis Griffin, SHPO
Archaeological Services
Dennis.Griffin@oregon.gov
503-986-0674

Coos County Sheriff's Office

250 N Baxter
Coquille, OR 97423
541-396-7800

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6. Bibliography and Professional Qualifications

A. Bibliography

Ames K. M., and A.G. Marshall

- 1982 Villages, demography and subsistence intensification in the southern Plateau
North American Archaeologist 2 25-52.

Baird, Lynn, and D. Baird.

- 2003 In Nez Perce Country: Accounts of the Bitterroots and the Clearwater after Lewis
and Clark. Northwest Historical Manuscripts Series. University of Idaho Library,
Moscow, Idaho.

Barner, D.C.

- 1982 Shell and Archaeology: An Analysis of Shellfish Procurement and Utilization on the
Central Oregon Coast. Unpublished Master's Thesis, Dept. of Anthropology, Oregon
State University, Corvallis.

Barnett, Homer G.

- 1937 Culture Element Distributions, VII: Oregon Coast. University of California Anthropological
Records 1(3):155-204.

Byram, R. Scott

- 2002 *Brush Fences and Basket Traps: The Archaeology and Ethnohistory of Tidewater Weir
Fishing on the Oregon Coast*. Ph.D. Dissertation, University of Oregon Department of
Anthropology, Eugene.
- 2006 Cultural Resources Survey for the Jordan Cove Energy Project at Coos Bay, Oregon
Unpublished report completed for SHN Consulting Engineers and Geologists.

Connolly, T.

- 1986 Cultural Stability and Change in the Prehistory of Southwest Oregon and Northern
California. Unpublished Ph.D dissertation.

Davis, Loren G., Michele L. Punke, Roberta L. Hall, Matthew Fillmore and Samuel C. Willis

- 2004 A Late Pleistocene Occupation on the Southern Coast of Oregon, *Journal of Field
Archaeology* Vol. 29, No. 1/2 (Spring, 2002 - Summer, 2004), pp. 7-16

Dodge, Orvil

- 1898 *Pioneer History of Coos and Curry Counties, Oregon*. Capital Printing Company, Salem.

Dorsey, James

- 1889 Indians of Siletz Reservation, Oregon. *American Anthropologist* 2(1):55-60.

Section B
Archaeological Resources

- 1890 The Gentile System of the Siletz Tribes. *Journal of American Folk-Lore* 3(10):227-237
- Douthit, Nathan
- 1986 *A Guide to Oregon South Coast History*. River West Books, Coos Bay, Oregon.
- 2002 *Uncertain Encounters: Indians and Whites at Peace and War in Southern Oregon 1820s-1860s*. Oregon State University Press, Corvallis.
- Draper, John A.
- 1988 *A Proposed Model of Late Prehistoric Settlement Systems on the Southern Northwest Coast, Coos and Curry Counties, Oregon*. Ph.D. Dissertation, Washington State University. University Microfilms, Ann Arbor.
- Drucker, Philip
- 1934 Coos Ethnographic Field Notes, Notebooks 1-3. Series 1, Manuscript 4516, File 78-79, Southwest Oregon Research Project. University of Oregon Library, Eugene.
- Farrand, Livingston
- 1901 Notes on the Alsea Indians of Oregon. *American Anthropologist* 3:239-247.
- Frachtenburg, Leo
- 1909 Hanis Coosan Ethnographic Notes and Myths in English. Series 1, Manuscript No. 330 in National Anthropological Archives, Smithsonian Institution, Washington.
- 1913 *Coos Texts*. Columbia University contributions to anthropology; v.1, New York: AMS Press.
- Frachtenberg, L., & Boas, Franz
- 1914 *Coos, an illustrative sketch* (Bulletin (Smithsonian Institution. Bureau of American Ethnology); 40, pt. 2. Washington: Govt. Print. Off.
- Hansen, R.
- 1994 *History of the U.S. Naval Auxiliary Air Station, North Bend, Oregon*. Historic Oregon Press. North Bend, OR
- Harrington, John P.
- 1942 Alsea, Siuslaw, Coos, Southwest Oregon Athapaskan: Vocabularies, Linguistic Notes, Ethnographic and Historical Notes. *John Peabody Harrington Papers, Alaska/Northwest Coast*, Elaine Mills, editor. National Anthropological Archives, Smithsonian Institution, Washington D.C.
- Jacobs, Melville
- 1934 Hanis and Miluk Coosan Texts and Linguistic and Ethnographic Data, Melville Jacobs Collection, University of Washington Libraries, Seattle.

Section B
Archaeological Resources

- Jenkins, Dennis L., Loren G. Davis, Thomas W. Stafford Jr et al.
2012 Clovis Age Western Stemmed Projectile Points and Human Coprolites at the Paisley Caves. *Science*, 13 July: 223-228.
- Jensen, Andie
2012 Coos Bay: Images of America. Arcadia Publishing: 128 pgs.
- Kelsey, Harvey M., Robert C. Witter, and Eileen Hemphill-Haley
2002 Plate-boundary earthquakes and tsunamis of the past 5500 yr, Sixes River estuary, southern Oregon. (Author Abstract). *The Geological Society of America Bulletin*, 114(3), 1379-1405.
- Minor, Rick and Ruth L. Greenspan
1998 *The Hauser Site: Archaeological Evidence of a Paleo-Estuary in the Oregon Dunes, South- Central Oregon Coast*. Report to Siuslaw National Forest. Coastal Prehistory Program, Oregon State Museum of Anthropology, University of Oregon, Eugene.
- Minor, R., & Nelson, A.
2002 Artifacts From a Submerged Prehistoric Site: On the Coos Bay Estuary, Southern Oregon Coast. *Journal of California and Great Basin Anthropology*, 24(1), 41-51.
- Minor, Rick
2008 Archaeological Monitoring and Testing at the Alsea Village of Lku huyu "Old Town Waldport", HRA Project Report #326 (on file at the Oregon SHPO)
- Minor, Rick, and Kathryn Anne Toepel
1986 *The Archaeology of the Tahkenitch Landing Site: Early Prehistoric Occupation on the Oregon Coast*. Heritage Research Associates Report No. 46, Eugene.
- Moss, M. L., and J. M. Erlandson
1998 Early Holocene Adaptations on the Southern Northwest Coast. *Journal of California and Great Basin Anthropology* 20(1):13-25
- Peterson, Emil, and A. Powers
1952 *A Century of Coos and Curry: History of Southwest Oregon*, Coos-Curry Pioneer Association, Coquille, Oregon.
- Tveskov, Mark A.
2000 *The Coos and Coquille Indians: A Historical Anthropology of the Northwest Coast*. Ph.D. dissertation, University of Oregon, University Microfilms, Ann Arbor, Michigan.
- Tveskov, Mark A., and John Erlandson
2003 The Haynes Inlet weirs: Estuarine fishing and archaeological site visibility on the southern Cascadia coast. *Journal of Archaeological Science*, 30(8), 1023-1035.

Section B
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Wasson, George B.

- 2001 Growing Up Indian: an Emic Perspective. Ph.D. dissertation, Department of Anthropology, University of Oregon.

Wagner, D., and Judith Wagner

- 2005 *North Bend between the World Wars: 1919-1941*. North Bend, Or.: Bygones.

Whereat, Don, P. Whereat Phillips, M. Caldera., R. Thomas, R. Pullan R, and S. D. Beckham.

- 2010 The Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians Our Culture and History. Accessed online 4/6/2018 at http://www.yachats.info/history/Indigenous/Our_Culture_&_History.pdf

Whereat Phillips, Patty

- 2014 [Indigenous names of Coos Bay's sloughs](#). Online blog (Shichils's Blog) entry of March 16, 2014. Accessed 4/6/2018 at <https://shichils.wordpress.com/2014/03/16/indigenous-names-of-coos-bays-sloughs/> March 16 2014.
- 2017 *Upper Coos Bay Place Names*. The Voice of the Clusi: News from the Confederated Tribes of the Coos, Lower Umpqua, & Siuslaw Indians. May 2017. Accessed online 4/6/2018 at <https://ctclusi.org/assets/5907ad24c9e22ceb1c000001.pdf>

Witter, R.

- 1999 *Late Holocene paleoseismicity, tsunamis and relative sea-level changes along the south-central Cascadia subduction zone, southern Oregon, U.S.A.* University of Oregon.

Zenk, Henry B.

- 1990 Siuslawans and Coosans. In *Smithsonian Handbook of North American Indians Vol. 7, Northwest Coast*, edited by Wayne Suttles, pp. 572-580. Smithsonian Institution, Washington.

Zontek, T.

- 1983 Aboriginal Fishing at Seal Rock (35LNC14) and Neptune (35LA3): Late Prehistoric Archaeological Sites on the Central Oregon Coast. Unpublished Master's Thesis, Department of Anthropology, Oregon State University, Corvallis.

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B. Professional Qualifications for Staff Completing Survey and Evaluation for Historic Resources

Lyle Nakonechny, Ph.D.

Transect Archaeology

A Pacific Northwest archaeologist with many years of experience in the Pacific Northwest region, Mr. Nakonechny meets and exceeds the educational and professional qualifications of the *Secretary of the Interior's Standards for Professional Qualification* (per 48 FR 44738-44739) in Prehistoric and Historic Archaeology. Mr. Nakonechny, and his Transect Archaeology team, performs archaeological research, survey, and excavation services throughout Oregon, Washington, Idaho, and Montana.

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7. Figures and Site Inventory Forms for Archaeological Resources

A. Survey Area Location Map

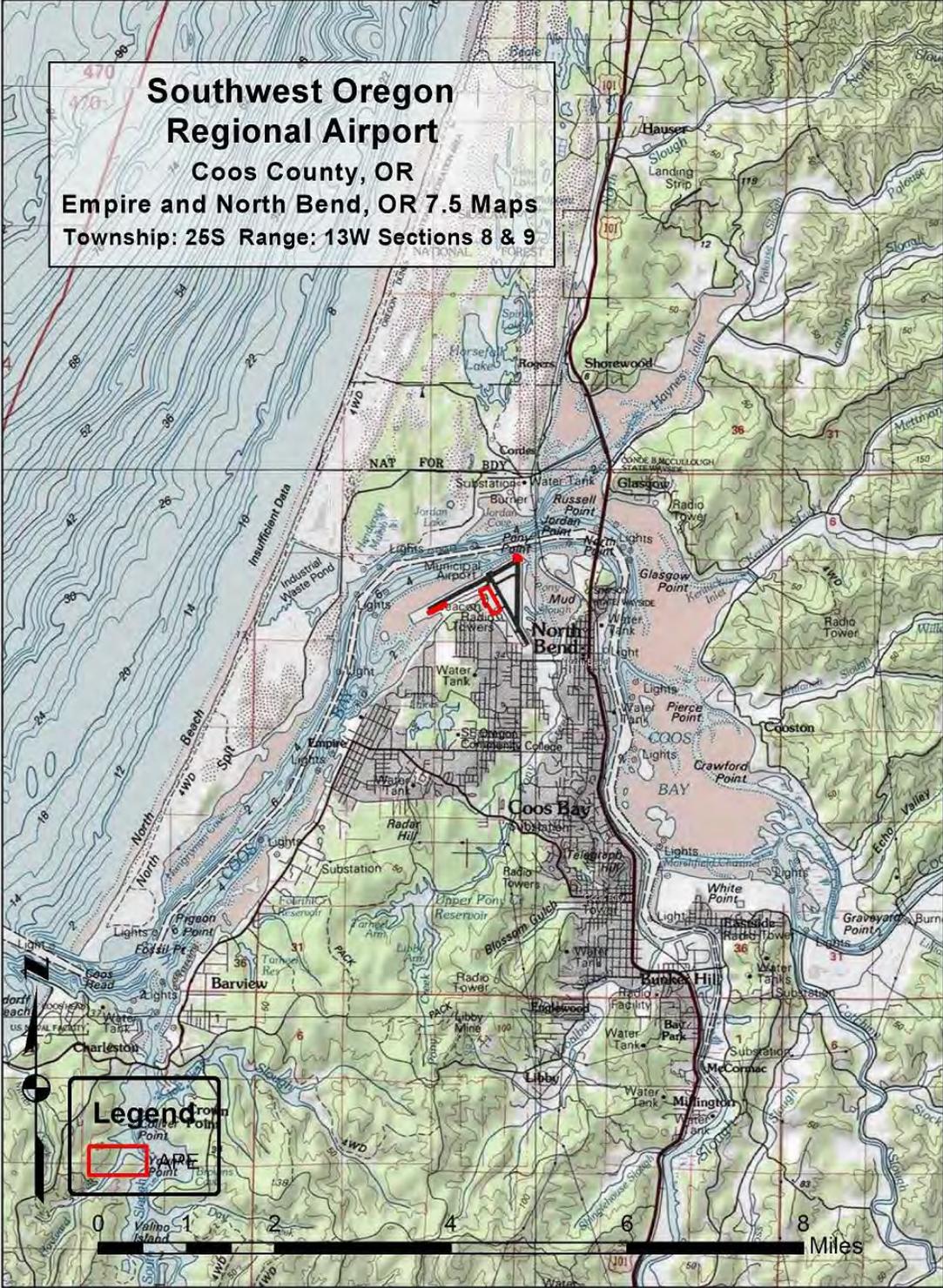


Figure B.1: Survey area vicinity map.

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B. Images of Survey Area

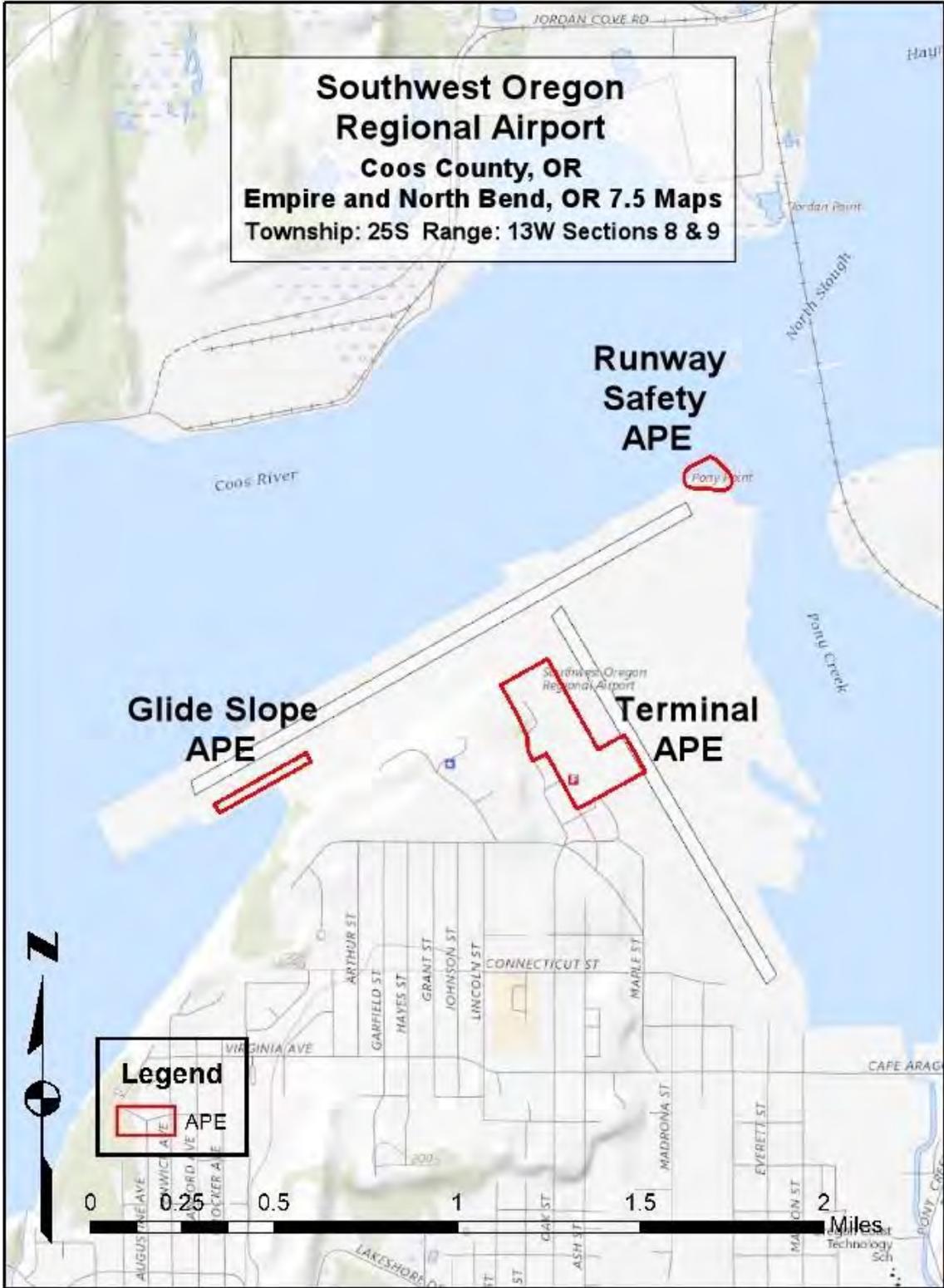


Figure B.2: Survey area detail map.

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Figure B.3: Terminal APE overview photograph, view to the northwest.



Figure B-4: Glide Slope APE overview photograph, view to the east.

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Figure B-5: Runway Safety Area APE overview photograph, view to the north.

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C. Location of Historic Shorelines

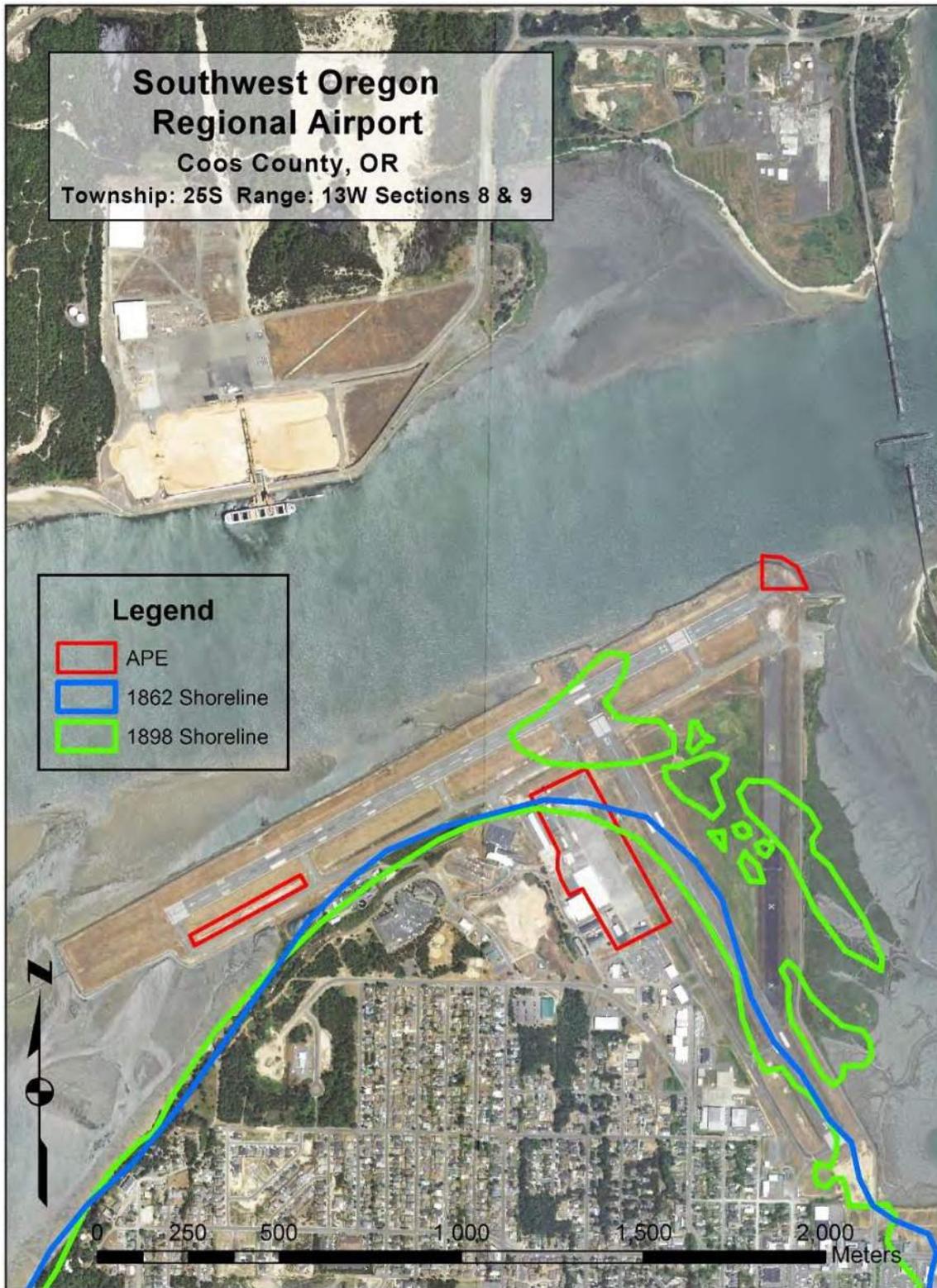


Figure B.6: Location of historic shorelines.

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D. Survey Transect Map

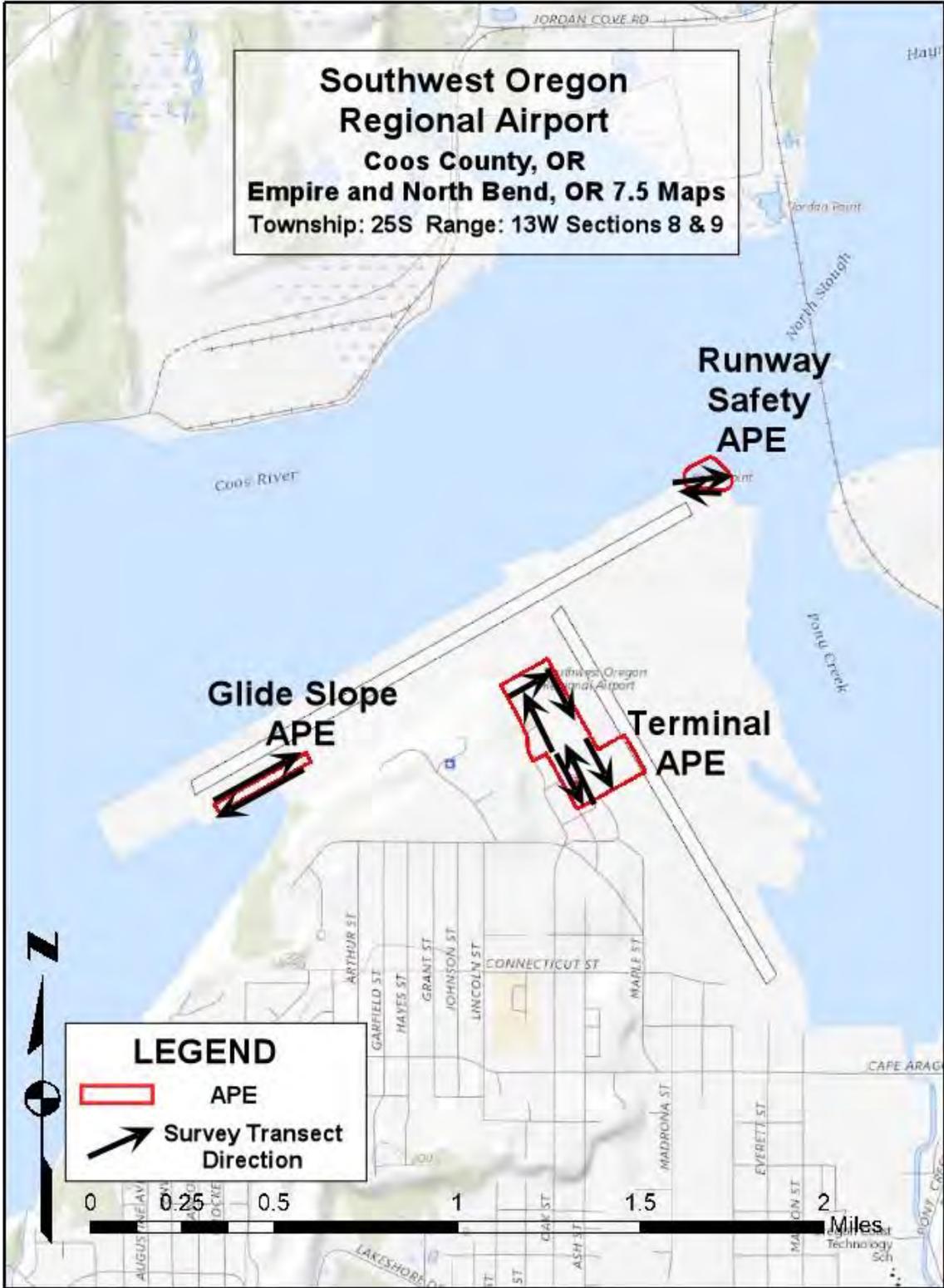


Figure B-7: Directions of pedestrian survey transects.

E. Shovel Testing Maps



Figure B.8: Shovel tests in the Terminal APE.

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Figure B.9: Shovel tests in the Glide Slope APE.

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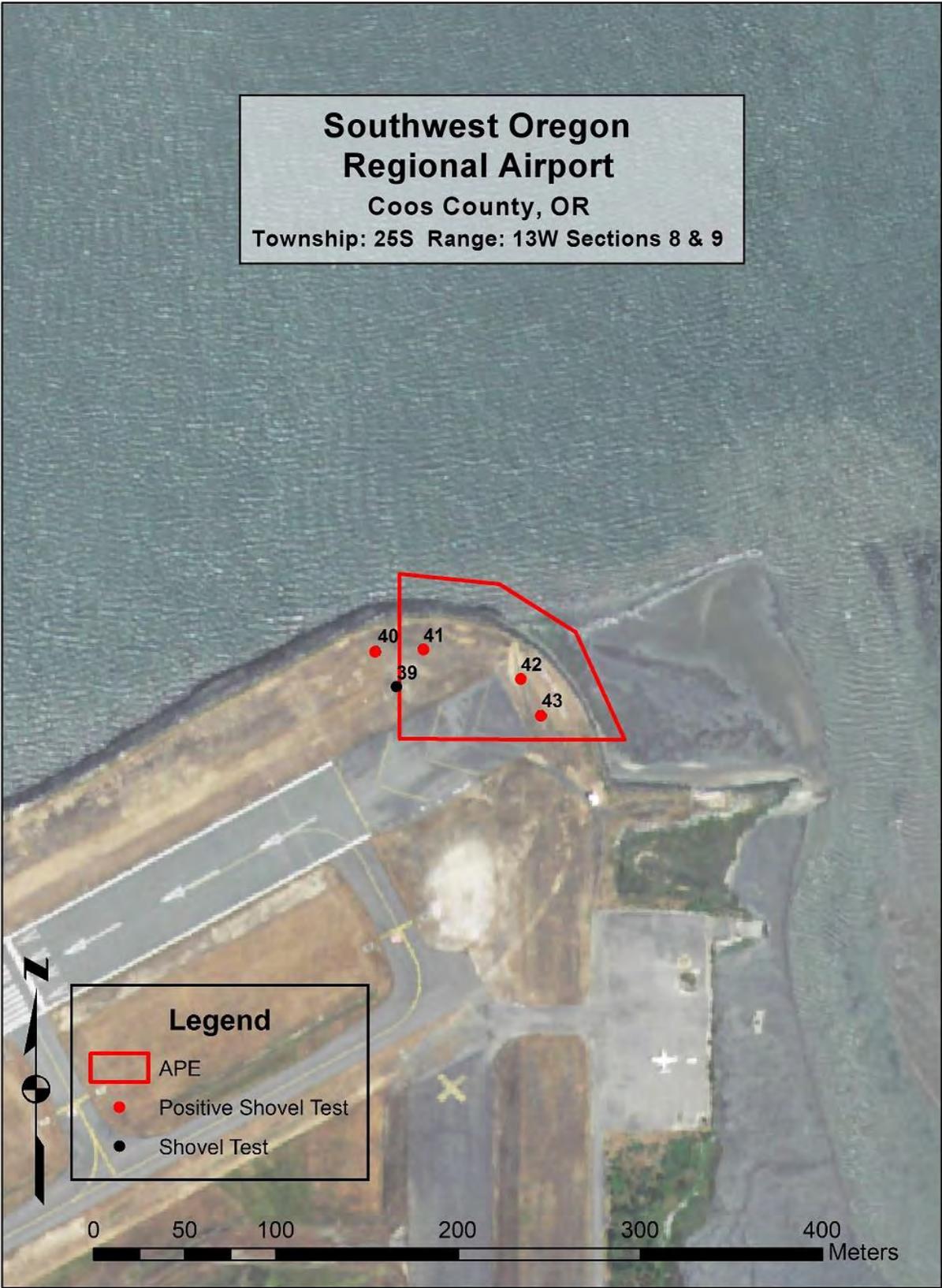


Figure B.10: Shovel tests in the Runway Safety Area APE.

F. Artifact Pictures



Figure B.11: 50-caliber bullet and casing fragment from the Terminal APE.



Figure B.12: "Flare" base from the Terminal APE ST #14.

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Figure B.13: 50 caliber "M 43" base stamp from the Glide Slope APE.



Figure B.14: 50 caliber brass shell from the Glide Slope APE.

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Figure B.15: Gaper clam shell from buried sediments in the Runway Safety Area APE.



Figure B.16: Possible chert lithic debris from Shovel Test #43.

Section C.
Historical Resources (Built Environment)
(Mead & Hunt)

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Section C Historical Resources

1. Objective

The objective of this survey is to identify historical resources in the built environment within the APE and determine whether they are eligible for listing in the National Register and considered a historic property. Under the *National Register Criteria for Evaluation*, a historic property must be at least 50 years in age, possess significance, and retain the degree of integrity necessary to convey its significance. Resources of more recent construction that possess exceptional significance may also be eligible under *Criterion Consideration G*. For the purposes of this report, to prevent the recommendations from being outdated once anticipated construction activities commence, this survey effort identified and evaluated historical resources in the built environment at least 45 years in age. Data gathered during the field survey will assist officials at the FAA and Airport in determining whether proposed actions may adversely affect historic properties.

2. Survey Methodology and Research Design

Prior to commencement of survey activities, Mead & Hunt completed a search of the *Oregon Historic Sites Database* maintained by the Oregon SHPO to identify previously documented historical resources within the APE. Built environment resources are only present within the Terminal APE parcel of the discontinuous project APE. Previous cultural resource studies conducted near the project area and within the project APE were also reviewed; studies that include information related to historical resources in the built environment are shown in Table B.1 in Section B. No previously identified historical resources in the built environment were identified within the Terminal APE.

Qualified cultural resource professionals conducted an investigation of the built environment within the Terminal APE on January 18, 2019 to identify historical resources. All buildings within the Terminal APE as well as general contextual views of the buildings adjacent to the Terminal APE and of the Airport in general were documented. In addition to documenting and evaluating individual resources, Mead & Hunt also assessed whether a potential historic district was present within or adjacent to the Terminal APE. Based on a review of the Airport and the Terminal APE using aerial photographs, Mead & Hunt expected to find warehouses and concentrations of utility buildings, hangars, and storage buildings associated with the Airport, some from the WWII era and some of more recent construction. Structures such as the apron and runways were also considered during the analysis. Upon completion of our investigation and analysis, Mead & Hunt completed *Section 106 Documentation Forms* for the six buildings within the Terminal APE to be included in the Oregon SHPO's *Oregon Historic Sites Database*.

Mead & Hunt conducted research at the following repositories to develop an overview of the physical development and history of the Airport, surrounding environment, and the historical resources within the APE:

- Southwest Regional Airport – Archival Records
- Coos History Museum/Coos Historical Society – Archival consult and online research
- Coos Public Library (Coos Bay)
- University of Oregon – Special Collections and Archives
- Newspapers.com – online repository of the Coos Bay Times, 1930-1975

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Research yielded the following sources:³

- Historic photographs and aerials
- Historic maps
- Relevant histories of the Airport, including the period it served as Naval Air Station, North Bend
- Historic local newspaper articles

Research assisted in identifying the important historic contextual themes and for evaluating historical resources within the APE. A map of documented historic resources in the built environment at least 45 years in age within the APE is provided in Section C.4.

3. Historic Context

Research on the physical development of the Airport and surrounding area identifies the major historic contexts related to the Airport and the Terminal APE. The historic contexts relate to the National Register Areas of Significance of Transportation (General Aviation), Government/Politics (Depression-Era Federal Relief Programs of the Works Progress Administration and the Civil Aeronautics Authority), and Military (Naval Auxiliary Air Station).

A. Early Development

In the early 1850s natural resources such as coal and timber drew settlers to the Coos Bay area, resulting in the establishment of three communities: Empire City, North Bend, and Coos Bay. The first was Empire City, founded by the Coos Bay Commercial Company in 1853 (west/southwest of North Bend). Soon after a settlement began at the “north bend” of the Coos Bay estuary (present day North Bend), and Marshfield (later renamed Coos Bay) to the south and east of North Bend was also founded during this period. The Airport is located in North Bend. North Bend became a mill town: a sawmill was constructed in 1856 and nearby shipyards produced ships from locally milled lumber. In 1906, with a population nearing 2,000, North Bend incorporated.⁴

B. Air-related Resources

History related to airplanes, air travel, and landing strips in Coos Bay/North Bend (also known as Oregon’s Bay Area) began in 1912 when stunt pilot Silas Christofferson presented a five-day exhibition at the Marshfield racetrack. In 1913, Vern Gorst established sea-plane service between North Bend and Marshfield. With the onset of World War I (WWI), 870 soldiers were stationed in Coos County as part of the “Spruce Division” to log and mill parts to assemble wing-beams, struts, and ribs for airplanes.⁵ In 1925 Vern Gorst founded Pacific Airlines, an air-mail carrier with an occasional passenger. Pacific Air

³ See Bibliography for full account of resources consulted.

⁴ Stephanie T. Butler and SWCA Environmental Consultants, *Cultural Resources Inventory for Phase I of the North Bend Municipal Expansion Project, Coos County, Oregon* (W&H Pacific, Inc., February 10, 2006), 7; Marshfield residents voted to change their name to Coos Bay in 1944.

⁵ Transect Archeology, *Draft Coos Airport Archeological and Ethnographic Overview, Coos Airport Cultural Resources Survey*, n.d., 3; Gerald Williams, “Spruce Production Division,” *Oregon Encyclopedia*, 2018.

Section C Historical Resources

later merged with other companies to form United Airlines.⁶ It is unknown whether any of these activities took place at the Airport or within the APE.

C. North Bend Municipal Airport

In 1935 an airport was established in North Bend as a Work Projects Administration (WPA) project sponsored by the city at the request of a local airplane club. Initial funding totaled \$72,000 and was approved by the WPA for building and equipping the Airport, the subject of this study. Plans included a hangar, administration building, and necessary navigation aid (lights and beacons). Due to the lack of flat ground, the Airport was located on reclaimed land north and west of the city along the confluence of the Pony Slough and Coos Bay.⁷ In 1937 a dike was built and land to extend a runway on was created by pumping sand from the bay and cutting down a hill. Over 338,000 cubic yards had been moved and 2,150 square yards of rip-rap laid when the airport officially opened in 1939. In early 1941 a \$350,000 WPA appropriation funded a major upgrade to the facility. Additional earth was moved to the airport, at the rate of 10,000 yards a day, to construct longer runways that would accommodate planes of any type. Improvements were funded by The WPA and the Civil Aeronautics Authority (CAA) to construct three 3,500-foot intersecting gravel-based and oil-sealed runways, establishing the configuration seen at the Airport today.⁸

D. World-War II Era

The Oregon Bay Area contribution to national defense slowly gained momentum as war loomed on the horizon. Defense classes were offered in the nearby communities of Powers and Coquille, the area's chrome and coal industries languished, and the Kruse and Banks shipyard worked to secure orders. By spring of 1941 the pace quickened: Kruse and Banks landed an order for four United States Naval vessels, with more in the works, and other local shipbuilders produced vessels for the United States Army (Army). The Bay Area offered a large defense class with an expanded program that trained men for work as airplane mechanics, welders, marine engineers, and shipbuilders. Demand for coal and chrome from area manufacturers rose, and shipments made their way to market via railway and ships.⁹

During this period, both the Army and Department of the Navy (Navy) were investigating the Bay Area's potential. The Army surveyed the Airport and nearby Coos Head Park (west of the Airport) for the location of a base. In order to secure a location that could accommodate both land and sea landings, the

⁶ Butler and SWCA Environmental Consultants, *Cultural Resources Inventory for Phase I of the North Bend Municipal Expansion Project, Coos County, Oregon*, 7.

⁷ Butler and SWCA Environmental Consultants, *Cultural Resources Inventory for Phase I of the North Bend Municipal Expansion Project, Coos County, Oregon*, 7; Melissa Darby and Lower Columbia Research & Archeology, *Cultural Resources Report for the Airport Industrial Park, North Bend* (Coos County: Oregon Economic & Community Development Department, State of Oregon, July 11, 2005), 8; "North Bend Field Reported Slated For \$30,000 More," *Coos Bay Times*, December 21, 1935. Note: none of these resources are extant.

⁸ M.L. Shettle, *United States Naval Air Stations of World War II*, vol. II: Western States (Bowersville Georgia: Shaertel Publishing Co., 1997), 169; "The Airport Is Approved," *Coos Bay Times*, February 5, 1941; "WPA Official Comes On Airport Project," *Coos Bay Times*, October 17, 1941; Harrison Hornish, "Over One-Third Million Dollars Spent In Coos By WPA Last Year," *Coos Bay Times*, January 12, 1939.

⁹ "Here We Are, Hustling and Bustling," *Coos Bay Times*, August 23, 1941.

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Navy initially looked at a site in the community of Empire (southwest of the Airport) and the Airport for a base.¹⁰ With the onset of WWII, WPA funding was used again to lengthen one runway an additional 1,600 feet. A detachment of the Army's 406th Bombardment Squadron from Paine Field, Washington, operated anti-submarine missions with twin engine bombers from the Airport during the spring of 1942. Later in 1942, the CAA paved the runways.¹¹

(1) Naval Auxiliary Air Station, North Bend

In 1943 a Naval Air Station (NAS) was established at Astoria, Oregon and that same year the Navy selected the Airport site for a NAAS. The Navy signed a letter of agreement with the City of North Bend for the use of the 618-acre municipal airport, improvements on it, and abutting tidelands. Additional land was acquired to construct facilities, and initial improvements included barracks to house 675 men, a large wooden hangar, and storage for 100,000 gallons of gasoline. The Naval Auxiliary Air Station, North Bend (Station) was officially commissioned on May 10, 1943.¹²

The primary mission of the Station was the administration, operation, maintenance and training of Fleet Units, and it was utilized as a training base for Navy pilots from 1943 to 1945.¹³ Several squadrons of different aircraft, including fighters, transports, torpedo bombers, dive bombers, and observation planes were based at the Station at various times. Pilots were in high demand and training measures utilized included simulators, in order to shorten training time. Squadrons honed skills on four bombing and strafing ranges built in the sand dunes north of the bay that assisted in serving as simulators. During the war more than 1,200 navy pilots and crewmen received operational training at the Station.¹⁴

The Station also served as a base for inshore patrol, providing aviation facilities for Army and Naval squadrons and landing facilities for lighter than air patrol (dirigibles). In addition to asphalt runways, the Station had two dirigible mooring circles and a seaplane ramp (northeast of and outside the Terminal APE, see Figure C.1). A dirigible squadron operated out of the Station from April to October of 1944. The following year, a Coast Guard Air and Sea Rescue Unit was established at the Station (southeast of and outside the Terminal APE).¹⁵

¹⁰ "Here We Are, Hustling and Bustling," 2.

¹¹ Shettle, *United States Naval Air Stations of World War II*, II: Western States:169.

¹² "Air Station North Bend," *Global Security*, 2011, <https://www.globalsecurity.org/military/facility/north-bend.htm>; *History of the Bureau of Yards and Docks and the Civil Engineer Corps, 1940-1946*, vol. 1 (Washington D.C: United States Government Printing Office, 1947), 239.

¹³ Naval Fleet Units are the smaller components that make up the fleet, each representing administrative units. Several ships of the same type are organized into a squadron, several squadrons form a flotilla, and several flotillas form a fleet.

¹⁴ "Air Station North Bend"; Alan Torbet, "North Bend Air Base Ends War Training, U.S. Navy Station Closing Facilities," *Coos Bay Times*, September 17, 1945.

¹⁵ "Air Station North Bend"; Butler and SWCA Environmental Consultants, *Cultural Resources Inventory for Phase I of the North Bend Municipal Expansion Project, Coos County, Oregon*, 7–8; Gail Elber, "Photos Evoke North Bend Airport's Wartime History," *The World*, May 28, 2013, https://theworldlink.com/news/local/photos- evoke-north-bend-airport-s-wartime-history/article_4d9d4f36-c7b6-11e2-9ff3-0019bb2963f4.html; Shettle, *United States Naval Air Stations of World War II*, II: Western States:169.

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Figure C.1: May 1945 aerial image of the Station.¹⁶

In total, the Navy invested 2.5 million dollars into facilities at the Station during WWII. At one time the Station was a town unto itself, and included a store, barber shop, theater, mess hall, officer's club, gymnasium, hospital, barracks, single family housing, and sewer and water systems, all constructed as temporary buildings. Temporary buildings of the WWII-era typically consisted of expediently constructed, low-cost, minimal facilities designed to last for five years or less. They were built with local materials and construction methods, and could also be pre-fabricated, such as metal Quonset huts (see Figure C.2). Extant buildings and facilities constructed during this period include warehouses, utility buildings, and an American Legion Hall (within and southwest of the Terminal APE). Six of these are of frame construction, and two small utility buildings are concrete block. In addition, two extant underground facilities, a Fuse and Detonator Magazine and Small Arms Magazine, were constructed (outside of and southwest of the Terminal APE).¹⁷

¹⁶ *Naval Auxiliary Air Station, North Bend*, Photograph, black & white, May 1945, National Archives, Military Records.

¹⁷ Bob Hood and Airport Maintenance Manager, Interview with Lyle Nakonechny, January 18, 2019; Darby and Lower Columbia Research & Archeology, *Cultural Resources Report for the Airport Industrial Park, North Bend*, 10–11; “Unified Facilities Criteria, Non-Permanent DOD Facilities in Support of Military Operations” (Department of Defense, January 1, 2013), 1–4, https://www.wbdg.org/FFC/DOD/UFC/ufc_1_201_01_2013.pdf.

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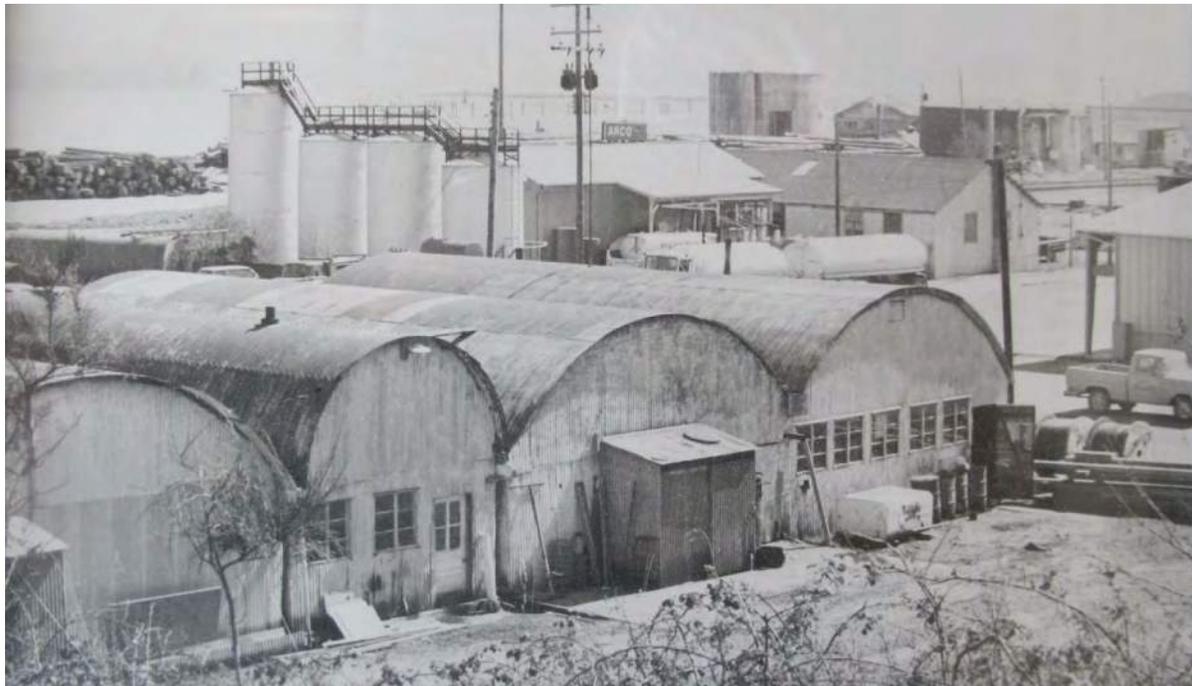


Figure C.2: c. 1944 contextual view of the Station showing numerous buildings, including metal Quonset huts in the foreground, and structures once present.¹⁸

As the war came to a close, the Station was placed in caretaker status. In 1946 it was declared surplus and turned over to the War Assets Administration (WAA) for disposal. The WAA began to liquidate surplus buildings, and in 1947 several temporary buildings and outbuildings, furniture, and building materials were sold to the public. In September 1947 the former Station, including additional acreage acquired by the navy during its use as a Naval AAS, was returned to the City of North Bend.¹⁹

(2) Post-WWII Developments to the Present Day

After the war, timber and other extraction industries in the Bay Area thrived. North Bend experienced a population boom, which led to construction of a new hospital, schools, and residences. Initially the Airport struggled; it was expensive to operate and maintain, which placed strain on the city of North Bend. While viewed as a drain on resources by some, North Bend Mayor I.N. Hartley and other city leaders worked to secure its future. In 1947 West Coast Airlines began regular service to the Airport, which gradually developed a successful mix of civil and commercial aviation services.²⁰

¹⁸ C. 1944 photograph courtesy of the Southwest Oregon Regional Airport.

¹⁹ "Air Station North Bend"; Butler and SWCA Environmental Consultants, *Cultural Resources Inventory for Phase I of the North Bend Municipal Expansion Project, Coos County, Oregon*, 7–8; W&H Pacific, Inc. and Corvid Consulting, *Environmental Assessment for New Terminal Building, Terminal Area Facilities And Runway 4-22 Resurfacing, North Bend Airport* (Coos County Airport District, March 1, 2006), 17; "Surplus Portable Buildings and Misc. Fabricated Furniture, Naval Auxiliary Air Station, North Bend, Oregon," *Coos Bay World*, June 17, 1947, 13.

²⁰ "Airport Grew From Tidelands," *North Bend News*, May 5, 1982, 12.

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Fueling Bay Area growth, the Weyerhaeuser Lumber company opened a large North Bend mill in 1952, which became a major employer. In 1961 the Bay Area gained a community college with the establishment of the Southwestern Oregon Community College. Initially classes were held at former Station facilities still extant at the Airport, until a permanent campus was constructed in Coos Bay between 1963 and 1969.²¹

By the 1960s new facilities were needed at the Airport to accommodate the present use and anticipated growth in air service. The ARFF building was completed in 1960 and a passenger terminal building was constructed in 1962 (see Figure C.3).²² In the late 1960s and 1970s an increase of search and rescue activity off the Oregon coast led to the commissioning of the Coast Guard Air Station in 1974 (outside of and southeast of the Terminal APE).²³ Increased air traffic in the mid-1970s spurred airport improvements, including filling five acres of Pony Sough to extend the east-west runway (4-22).²⁴

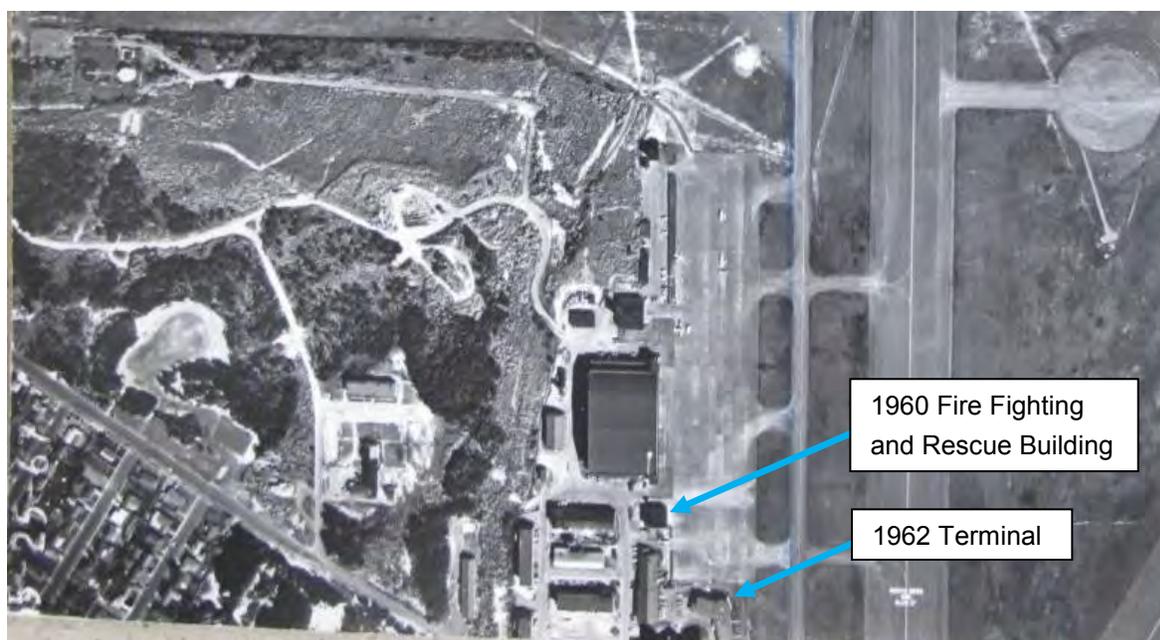


Figure C.3: 1967 aerial view of the Airport showing ARFF building and 1962 terminal (blue arrows).²⁵

²¹ Nathan Douthit et al., "Timeline of South Coast History," *Coos History Museum*, 2017, <https://cooshistory.org/research/timeline-of-south-coast-history/>.

²² W&H Pacific, Inc. et al., *Airport Master Plan Final Technical Report* (North Bend Municipal Airport, North Bend, Oregon, Operated by Oregon International Port of Coos Bay, November 2002), 2–6; "Southwest Oregon Regional Airport, Master Plan Update: Chapter 2 Existing Conditions," *Southwest Oregon Regional Airport*, 2017, 2–36, http://cooscountyairportdistrict.com/files/uploads/2015/06/OTH_Chapter_2_Existing_Conditions.pdf. Note the 1962 terminal is currently referred to as the Old Terminal, Coos Aviation Building.

²³ "1974 - Air Station North Bend Oregon Established," *United States Coast Guard Aviation History*, 2017, <https://cgaviationhistory.org/1974-air-station-north-bend-oregon-established/>.

²⁴ "For NB Runways Airport Study Goes to FAA, NB City Council Accepts Final Draft on Airport," *The World*, October 30, 1975. This runway extension project was completed in 1988.

²⁵ 1967 aerial photograph, Southwest Oregon Regional Airport, Records and Archives.

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The Bay Area suffered economic setbacks in the recession of the 1980s. As traditional extraction industries declined, others developed such as manufacturing, fisheries, agriculture and tourist-based industries. The Airport continued commercial and freight service to regional destinations as the economic base of the Bay Area diversified. While the City of North Bend maintained ownership of the airport, operations were transferred from the city of North Bend's Public Works Department to the Port of Coos Bay in 1999, by an intergovernmental agreement.²⁶

In the 2000s Airport improvements continued, including resurfacing the main general aviation apron in 2001 and the next year a new Airport Master Plan was completed through an FAA Airport Improvement Program grant. In 2006 the Airport was renamed the Southwest Oregon Regional Airport (OTH). Recent additions include a new terminal building (outside the Terminal APE) constructed in 2008 and a new Airport Traffic Control Tower (outside the Terminal APE) the following year.²⁷ By 2009 many of the WWII-era buildings were showing their age, such as the main large wooden 1943 hangar. Coos County Airport District officials faced a tough decision whether to renovate the building at a hefty cost, or to demolish it and construct a new hangar. Before action was taken, the building burned in 2012; a new hangar was constructed in 2013 just southwest of the original hangar (outside the Terminal APE).²⁸ OTH continues to serve the Bay Area as the only commercial airport on the Oregon Coast with passenger service.

4. Findings of Identification and Evaluation Efforts

The historical resources (built environment) study reviewed the project APE to identify and evaluate resources for National Register eligibility. Only one of the discontinuous areas of the APE contain historical resources, the Terminal APE, which includes Airport buildings and structures. No historic buildings or structures are present within other portions of the project APE.

Within the Terminal APE, six historical resources at least 45 years in age within were identified and were evaluated applying the National Register Criteria for Evaluation (outlined in Section A.6). In addition, a group of buildings dating from c.1943 to the 1980s within and immediately adjacent to the Terminal APE was examined collectively for its potential to comprise a historic district. Mead & Hunt also considered whether the larger Airport itself may constitute a historic district in addition to evaluating the National Register eligibility of the individual properties located within the Terminal APE. The findings of this analysis are provided below.

A. Historic District Evaluation

For a concentration of historical resources to possess significance as a possible historic district, they must meet the last portion of National Register *Criterion C* as a distinguishable entity whose components may lack individual distinction and be important under *Criteria A* or *B*, other portions of *Criterion C*, or *Criterion D*.

²⁶ W&H Pacific, Inc. et al., *Airport Master Plan Final Technical Report*, 3–7; Hood and Airport Maintenance Manager, Interview with Lyle Nakonechny.

²⁷ "Southwest Oregon Regional Airport, Master Plan Update: Chapter 2 Existing Conditions," 2–2 and 2-3.

²⁸ Jessie Higgins, "Firefighters Stop Airport Hangar Inferno from Spreading," *The World*, December 4, 2012; Nate Traylor, "Hangar Hang-Ups," *The World*, December 5, 2009, https://theworldlink.com/news/local/hangar-hang-ups/article_ec0da5a7-7a02-564a-9417-aac829cb2a96.html.

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Criterion A: Government/Politics – No buildings are known to survive from the early federal work-relief programs related to the WPA and CAA funded improvements. From this era (1935-1941) discontinuous portions of paved runway may exist; however, most that have been subject to steady and incremental improvements over the years. Between 1942 and 1943 the Navy appeared to be planning for future use of the Airport as a NAAS, but Mead & Hunt did not identify buildings with a direct association with the WPA or CAA. Since there are no known extant historical resources from this period within or immediately adjacent to the Terminal APE, no historic district associated with this area of significance is present.

Criterion A: Military – Two WWII-era buildings related to role of Airport as a NAAS are extant within the Terminal APE and six additional buildings dating to this period (1943-1945) are just outside and southwest of the APE (see Figures C.4 through C.7). The two extant underground facilities southwest and outside of the Terminal APE are located some distance (approx. 2,500 feet) from the APE; however, their presence was considered in the overall analysis of whether the larger Airport may qualify as a possible district. Other WWII-era structures at the Airport include portions of the airport apron, taxiways, and runways and a small portion of the boat ramp at the northeast corner. Mead & Hunt's review of historic and current aerials did not reveal other WWII-era buildings at the Airport. Two of the historic-age buildings (at least 45 years) within the Terminal APE are from the 1960s and include the Old Terminal, Coos Aviation Building and the AARF Building, in addition to one modern building. Overall, the extant buildings with an association under *Military* are interspersed by later buildings unrelated to the military with dates of construction ranging from 1960 to 2003.

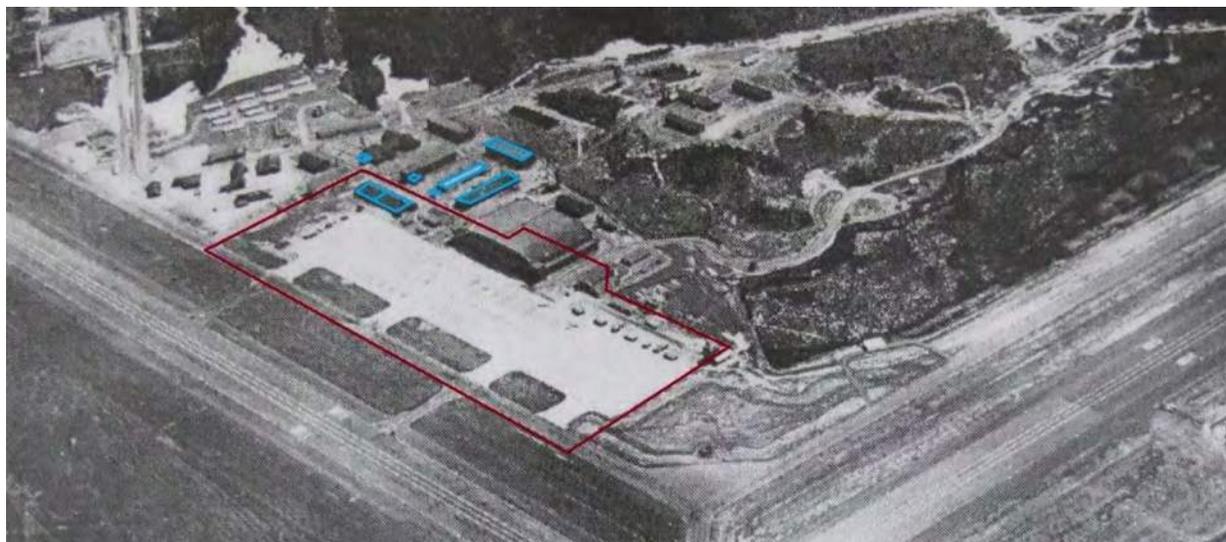


Figure C.4: 1946 image of the Airport with extant WWII-era buildings outlined in blue and relation to the Terminal APE, shown in red.²⁹

²⁹ 1946 aerial of the Airport courtesy of the Southwest Oregon Regional Airport records and archives.

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Figure C.5: FedEx and Seat Case Buildings of the WWII-era, view facing southeast.



Figure C.6: Contextual view of WWII-era buildings southwest of the Terminal APE.



Figure C.7: Contextual view of WWII-era buildings southwest of the Terminal APE.

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Research did not reveal an exact number of buildings that were constructed specifically for the Station between 1943 and 1945; however, research indicates “dozens” of buildings were erected. Historic photographs show a density of buildings clustered near the airfield that appear to consist of typical military temporary metal or simple frame construction (see Figure C.1). Following the war, research indicates these buildings were sold to the public or otherwise disposed of.

Mead & Hunt evaluated the Airport for its potential as a historic district under *Criterion A: Military*. Of the Airport’s current 30 buildings, approximately eight buildings (plus two underground bunkers and pavement remnants) are from the WWII-era. During WWII, the Navy had 45 air stations, 12 naval aviation reserve bases, 20 air fields, and numerous auxiliary stations.³⁰ As constructed, the NAAS in North Bend was the smallest of 10 auxiliary air stations in the northwest United States. Research into NASs and NAASs revealed it was a modest example of an auxiliary air station and in neither exhibited unique or innovative features, nor did it host specialized training. Considered as a NAAS, the limited number of extant WWII-era resources do not reflect how they once worked together to function as a NAAS. The 1943 main wooden hangar, which was the largest and served as the focus point of the Station, burned in 2012, which further detracts from to the ability of the grouping to form an identifiable entity. Due to the loss of a large number of resources associated with its development and use as a NAAS, the WWII-era buildings within and near the Terminal APE are unable to convey the overall historic environment.

Due to the loss of integrity, the remaining WWII-era resources do not form a concentration of WWII-era buildings and structures united by plan or physical development and do not serve as a good representative example of this property type. As such, neither the resources in and immediate to the Terminal APE nor the overall Airport reflect its function as a NAAS and collectively does not convey its association under *Military*. No historic district associated with the military under *Criterion A* is present at the Airport. Other WWII-era Naval or Coast Guard installations serve as better representative examples, such as former NASs in Seattle or Whidbey Island in Washington or former Coast Guard Station or Hangar B of the former NAAS, Tillamook, both in Tillamook, Oregon.

Criterion A: Transportation – Research did not reveal that the Airport served an important role in the development of transportation or general aviation at the local, state, or national levels. The Airport is one of many general aviation facilities in the state that have been the subject of continued improvement and changes in technology over time to provide convey of passenger and materials. As such, the historical resources at the Airport do not collectively form a unified entity with an important association in under transportation.

Criterion B: Important Persons – Research did not reveal a direct and important association between the Airport, or groupings of buildings on it, with people who made important contributions to history related to the major themes presented in the historic context. As such, the historical resources at the Airport do not collectively form a unified entity with an important association in under *Criterion B*.

³⁰ “World War II Permanent Construction Part II,” *Department of Defense*, accessed February 5, 2019, https://oregonencyclopedia.org/articles/spruce_production_division/#.XFny7qpKiNc.

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Criterion C: Architecture – As outlined above, neither the Airport as a whole nor groupings of buildings on it represent a significant and distinguishable entity whose components may lack individual distinction that are associated with the important contextual themes presented in the context. Further, the buildings do not have high artistic value and are not the work of a master. Eight extant c.1943 buildings are WWII-era temporary buildings that do not exhibit distinctive features or construction methods, or variations of construction methods; in addition, many of these buildings display alterations made over time that have resulted in diminished integrity. Due to the lack of significance and diminished integrity, the historical resources at the Airport do not qualify as a historic district for its architectural significance.

Criterion D: Information Potential – The historic themes associated with the Airport and its architecture and construction are reflected common buildings and structures and, as such, these resources do not have the potential to yield information important in history under *Criterion D* for built environment. The Airport does not have significance under *Criterion D* for built environment as a historic district.

Individual Properties

Mead & Hunt documented six historical resources in the built environment resources at least 45 years in age within the Terminal APE. Property types included those related to the following National Register areas of significance: Transportation (air-related facilities), and Military (WWII-era buildings). No historic resources related to federal Depression-era work-relief programs (e.g., the WPA) are known to be extant; therefore, no buildings within the Terminal APE as associated in the area of *Government/Politics*. Table C.1 provides a summary of documented resources. Figure C.8 shows the location of historical resources in the built environment resources at least 45 years in age within the Terminal APE. Below is a summary of the National Register evaluations of the individual historical resources. Section 7.B includes a *Section 106 Documentation Form* with physical description and a detailed National Register evaluation for each resource.

Table C.1: Summary of Documented Resources.

| Property No. | Property Name | Address | NR Area of Significance | Recommendation |
|--------------|--|--------------------|---|----------------|
| 1 | REACH Air Ambulance | 1198 Airport Road | Transportation (Air-related facilities) | Not Eligible |
| 2 | Aircraft Rescue & Fire Fighting Building | 1396 E Airport Way | Transportation (Air-related facilities) | Not Eligible |
| 3 | FedEx Building | 1141 E Airport Way | Military (WW II-era Buildings) | Not Eligible |
| 4 | Seat Case Building | 1100 E Airport Way | Military (WW II-era Buildings) | Not Eligible |
| 5 | Electrical Shed | 1100 Airport Lane | Transportation (Air-related facilities) | Not Eligible |
| 6 | Old Terminal, Coos Aviation Building | 1100 Airport Lane | Transportation (Air-related facilities) | Not Eligible |

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Figure C.8: Surveyed resources location map.

5. Recommendations

A. Historical Resources in the Built Environment Recommended Not Eligible for Listing in the National Register

Six historical resources listed in Table C.1 are recommended **not eligible** for listing in the National Register either due to a lack of significance and/or a loss of integrity. Detailed evaluations of these properties are provided on *Section 106 Documentation Forms* in Section 7.B. The grouping of historical resources near the Terminal APE and the Airport as a whole is recommended **not eligible** for listing in the National Register either due to a lack of significance and/or a loss of integrity.

B. Historical Resources in the Built Environment Recommended Eligible for Listing in the National Register

No properties within the Terminal APE are recommended eligible for listing in the National Register. No further work pursuant to Section 106 is recommended for these properties.

6. Bibliography and Professional Qualifications

A. Bibliography

“1974 - Air Station North Bend Oregon Established.” *United States Coast Guard Aviation History*, 2017. <https://cgaviationhistory.org/1974-air-station-north-bend-oregon-established/>.

“Air Station North Bend.” *Global Security*, 2011. <https://www.globalsecurity.org/military/facility/north-bend.htm>.

“Airport Grew From Tidelands.” *North Bend News*. May 5, 1982.

Butler, Stephanie T. Butler, and SWCA Environmental Consultants. *Cultural Resources Inventory for Phase I of the North Bend Municipal Expansion Project, Coos County, Oregon*. W&H Pacific, Inc., February 10, 2006.

Darby, Melissa, and Lower Columbia Research & Archeology. *Cultural Resources Report for the Airport Industrial Park, North Bend*. Coos County: Oregon Economic & Community Development Department, State of Oregon, July 11, 2005.

Douthit, Nathan, Emil Peterson, Alfred Powers, and Orville Dodger. “Timeline of South Coast History.” *Coos History Museum*, 2017. <https://cooshistory.org/research/timeline-of-south-coast-history/>.

Elber, Gail. “Photos Evoke North Bend Airport’s Wartime History.” *The World*, May 28, 2013. https://theworldlink.com/news/local/photos-evoke-north-bend-airport-s-wartime-history/article_4d9d4f36-c7b6-11e2-9ff3-0019bb2963f4.html.

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“For NB Runways Airport Study Goes to FAA, NB City Council Accepts Final Draft on Airport.” *The World*. October 30, 1975.

“Here We Are, Hustling and Bustling.” *Coos Bay Times*. August 23, 1941.

Higgins, Jessie. “Firefighters Stop Airport Hangar Inferno from Spreading.” *The World*. December 4, 2012.

History of the Bureau of Yards and Docks and the Civil Engineer Corps, 1940-1946. Vol. 1. Washington D.C: United States Government Printing Office, 1947.

Hood, Bob, and Airport Maintenance Manager. Interview with Lyle Nakonechny, January 18, 2019.

Hornish, Harrison. “Over One-Third Million Dollars Spent In Coos By WPA Last Year.” *Coos Bay Times*. January 12, 1939.

Naval Auxiliary Air Station, North Bend. Photograph, black & white, May 1945. National Archives, Military Records.

“North Bend Field Reported Slated For \$30,000 More.” *Coos Bay Times*. December 21, 1935.

Shettle, M.L. *United States Naval Air Stations of World War II*. Vol. II: Western States. Bowersville Georgia: Shaertel Publishing Co., 1997.

“Southwest Oregon Regional Airport, Master Plan Update: Chapter 2 Existing Conditions.” *Southwest Oregon Regional Airport*, 2017.
http://cooscountyairportdistrict.com/files/uploads/2015/06/OTH_Chapter_2_Existing_Conditions.pdf.

“Surplus Portable Buildings and Misc. Fabricated Furniture, Naval Auxiliary Air Station, North Bend, Oregon.” *Coos Bay World*. June 17, 1947.

“The Airport Is Approved.” *Coos Bay Times*. February 5, 1941.

Torbet, Alan. “North Bend Air Base Ends War Training, U.S. Navy Station Closing Facilities.” *Coos Bay Times*. September 17, 1945.

Transect Archeology. *Draft Coos Airport Archeological and Ethnographic Overview, Coos Airport Cultural Resources Survey*, n.d.

Section C
Historical Resources

Traylor, Nate. "Hangar Hang-Ups." *The World*. December 5, 2009.

https://theworldlink.com/news/local/hangar-hang-ups/article_ec0da5a7-7a02-564a-9417-aac829cb2a96.html.

"Unified Facilities Criteria, Non-Permanent DOD Facilities in Support of Military Operations." Department of Defense, January 1, 2013. https://www.wbdg.org/FFC/DOD/UFC/ufc_1_201_01_2013.pdf.

W&H Pacific, Inc., Coffman Associates, Landrum & Brown, Richard Turi Architecture & Planning, and The Benkendorf Associates. *Airport Master Plan Final Technical Report*. North Bend Municipal Airport, North Bend, Oregon, Operated by Oregon International Port of Coos Bay, November 2002.

W&H Pacific, Inc., and Corvid Consulting. *Environmental Assessment for New Terminal Building, Terminal Area Facilities And Runway 4-22 Resurfacing, North Bend Airport*. Coos County Airport District, March 1, 2006.

Williams, Gerald. "Spruce Production Division." *Oregon Encyclopedia*, 2018.

https://oregonencyclopedia.org/articles/spruce_production_division/#.XFny7qpKiNc.

"WPA Official Comes On Airport Project." *Coos Bay Times*. October 17, 1941.

1967. Southwest Oregon Regional Airport, Records and Archives.

B. Professional Qualifications for Staff

Chad Moffett, M.A.

Mead & Hunt, Inc.

With 20 years of professional cultural resource management experience, Mr. Moffett meets and exceeds the educational and professional qualifications of the *Secretary of the Interior's Standards for Professional Qualification* (per 48 FR 44738-44739) in history and architectural history. He serves as a project manager for cultural resource compliance projects and Section 106 projects. He manages research and field survey efforts to complete reconnaissance and intensive surveys, National Register evaluations, and historic contexts. Moffett holds degrees in American history, landscape architecture, and historic preservation. He served as co-principal investigator.

Liz Boyer, M.A.

Mead & Hunt, Inc.

Ms. Boyer is an architectural historian with more than nine years of experience in documenting, evaluating, and researching historic buildings, bridges, and landscapes. She meets and exceeds the educational and professional qualifications of the *Secretary of the Interior's Standards for Professional Qualification* (per 48 FR 44738-44739) in history and architectural history. She has completed reconnaissance and intensive-level architectural surveys, National Register Nominations, historic context

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studies, Determinations of Eligibility, and Section 106 compliance projects. Her responsibilities include historic research and report preparation. She served as co-principal investigator.

7. Section 106 Documentation Forms

A. Location of Historic Resources within APE

See Figure C.8.

B. Section 106 Documentation Forms

Section starts on next page.

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OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | | | | |
|---|--|--------------------------------------|---|---|--|
| Property Name: Reach Air Ambulance Building | | Street Address: 1198 Airport Road | | City, County: North Bend, Coos | |
| Project Name: OTH Airport Safety Improvements | | | Agency project #: | | |
| Agency: FAA | | | SHPO Case#: | | |
| Location Coordinates (to sixth decimal place): Latitude: 43.417589 Longitude: -124.247706 | | | Is the property listed in the National Register of Historic Places? <input type="checkbox"/> YES – Individually <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES – In a district | | |
|  | | | | | |
| View to southwest. | | | | | |
| Surveyor: Liz Boyer, Mead & Hunt, Inc.; Lyle Nakonechny, Transect Archeology | | | | Date Recorded: 1/18/2019 | |
| National Register Findings: <input type="checkbox"/> Eligible: <input type="checkbox"/> Individually <input type="checkbox"/> As part of District NR Criteria: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input checked="" type="checkbox"/> Not Eligible: <input type="checkbox"/> Irretrievable integrity loss <input type="checkbox"/> Not 50 Years <input type="checkbox"/> Fails to meet NR Criteria | | | | Finding of Effect: <input checked="" type="checkbox"/> No Effect <input type="checkbox"/> No Adverse Effect <input type="checkbox"/> Adverse Effect | |
| State Historic Preservation Office Comments – Official Use Only: Eligibility: <input type="checkbox"/> Concur <input type="checkbox"/> Do Not Concur: Effect: <input type="checkbox"/> Concur <input type="checkbox"/> Do Not Concur: | | | | | |
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Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|---|---|-----------------------------------|
| Property Name: Reach Air Ambulance Building | Street Address: 1198 Airport Road | City, County: North Bend, Coos |
| Original Use: Other ▼ | Number of Associated Resources: 1 | |
| Architectural Classification / Resource Type: Late 20th Century: other ▼ Building ▼ | Owner: <input checked="" type="checkbox"/> Private <input type="checkbox"/> Local Government <input type="checkbox"/> State <input type="checkbox"/> Federal | |
| Window type and Materials: Fixed | Exterior Surface Materials: Primary: Wood Sheet ▼ Secondary: Synthetic Wood Siding ▼ Decorative: -select materials- ▼ | |
| Roof Type and Materials: Cross-gable, Seamed metal | Construction Date: 2003 (<input type="checkbox"/> Circa) | |
| Integrity: <input checked="" type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor | Architect/Builder (if known): Unknown | |
| Description of Property (including previous alterations & approximate dates): This 2003, one-story, frame building has a rectangular plan. A full-height picture window extends into the eaves on the front (northeast) facade and rear (southwest) elevation; the front has a gable porch with square wood posts. Front and rear entrances are paired metal-with-glazing doors; a secondary entrance on the side (southeast) elevation is a metal slab door. Windows are metal fixed-sash, in pairs and triples. Walls are clad in wood paneling with vertical batten, over horizontal composite wood siding on the lower half-wall. The foundation is a poured concrete slab. | | |
| Determination of Eligibility, Justification, and Sources (Use continuation sheets if necessary): This building was evaluated for listing in the National Register of Historic Places under Criterion A: History, Criterion B: Significant Persons, Criterion C: Architecture, and Criterion D: Information Potential. This property is less than 50 years of age and was evaluated applying Criterion Consideration G: Properties That Have Achieved Significance Within The Last Fifty Years. Accordingly, this building must possess exceptional importance to be eligible for the National Register. This land has been used as an airport since 1936, and has since served as a Naval Auxiliary Air Station during World War II (WWII). In 1947 the property was returned to the city of North Bend and has since served as a municipal airport. The facility became the Southwest Oregon Regional Airport in 2006. Airport improvements in the 2000s include this building, a new terminal building in 2008, and control tower in 2009. This building was constructed in 2003. While this building has served as an air ambulance since its construction, research did not reveal a direct association with significant activities or events associated with WWII and the major themes developed in the historic context (Federal Depression-Era Relief Programs and Transportation). As such, this building does not possess significance under Criterion A applying Criterion Consideration G. Similarly, research did not reveal a direct association with people who made important contributions to the airport service or overall airport development at the local, state, or national level. Thus, this building does not possess significance under Criterion B applying Criterion Consideration G. (see continuation sheet, Reach Air Ambulance Building) | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|---|--------------------------------------|-----------------------------------|
| Property Name: Reach Air Ambulance Building | Street Address: 1198 Airport Road | City, County: North Bend, Coos |
| Description of project scope, and nature and extent of impacts: | | |
| <p>The Southwest Oregon Regional Airport (Airport) and the FAA, completed an Airport Master Plan in 2013 which demonstrated that improvements to the existing airfield are feasible, and will bring the airport in compliance with FAA design standards.</p> <p>The safety improvements to the Airport include adding an embankment to the NW end of Runway 4-22, at the confluence of Coos Bay and Pony Slough to meet FAA Runway Safety Area (RSA) standards. Other project activities include reconstructing the main general aviation apron pavement; removing taxiway connectors to enhance safety; installing maintenance improvements to approach lighting system (MALSR); and demolishing and reconstructing the Aircraft Rescue and Fire Fighting (ARFF) building.</p> | | |
| Finding of Effect and justification: | | |
| <p>The proposed project will have no effect on historic properties. This property is not eligible for the National Register of Historic Places (NRHP) because it fails to meet Criterion A, B, C, or D. Due to the lack of eligibility of this property for listing in the NRHP, the proposed project will have No Effect.</p> | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|--|--------------------------------------|-----------------------------------|
| Property Name: Reach Air Ambulance Building | Street Address: 1198 Airport Road | City, County: North Bend, Coos |
|--|--------------------------------------|-----------------------------------|



View: View to southwest.



View: Contextual view facing northeast.

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|--|--------------------------------------|-----------------------------------|
| Property Name: Reach Air Ambulance Building | Street Address: 1198 Airport Road | City, County: North Bend, Coos |
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Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties
Continuation Sheet

| | | |
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| Property Name: Reach Air Ambulance Building | Street Address: 1198 Airport Road | City, County: North Bend, Coos |
| (Cont.) | | |
| <p>Determination of Eligibility, Justification, and Sources, Continued:</p> <p>Further, this building reflects standard building materials and practices, lack high artistic value, and is not the work of a master. Accordingly, this building does not possess exceptional importance for architectural design, and therefore is not eligible under Criterion C. Additionally, this property has not yielded, nor is it likely to yield, information important in history and does not have significance under Criterion D for built environment. This property is not of "exceptional importance" and is not representative of an entire category of fragile resources. Therefore, this property is recommended not eligible for listing in the National Register under Consideration G.</p> <p>Sources used to support this eligibility recommendation are provided in the Section B Bibliography of the report titled "Cultural Resources Survey and Evaluation, Safety Improvements Project, Southwest Regional Airport (OTH), City of North Bend, Coos County, Oregon".</p> | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

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|--|---------------------------------------|---|
| Property Name: Aircraft Rescue & Fire Fighting Bldg | Street Address: 1396 E Airport Way | City, County: North Bend, Coos |
| Project Name: OTH Airport Safety Improvements | | Agency project #: |
| Agency: FAA | | SHPO Case#: |
| Location Coordinates (to sixth decimal place): Latitude: 43.415004 Longitude: -124.245606 | | Is the property listed in the National Register of Historic Places? <input type="checkbox"/> YES – Individually <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES – In a district |
|  | | |
| View to southwest. | | |
| Surveyor: Liz Boyer, Mead & Hunt, Inc.; Lyle Nakonechny, Transect Archeology | | Date Recorded: 1/18/2019 |
| National Register Findings: <input type="checkbox"/> Eligible: <input type="checkbox"/> Individually <input type="checkbox"/> As part of District NR Criteria: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input checked="" type="checkbox"/> Not Eligible: <input type="checkbox"/> Irretrievable integrity loss <input type="checkbox"/> Not 50 Years <input type="checkbox"/> Fails to meet NR Criteria | | Finding of Effect: <input checked="" type="checkbox"/> No Effect <input type="checkbox"/> No Adverse Effect <input type="checkbox"/> Adverse Effect |
| State Historic Preservation Office Comments – Official Use Only: Eligibility: <input type="checkbox"/> Concur <input type="checkbox"/> Do Not Concur: Effect: <input type="checkbox"/> Concur <input type="checkbox"/> Do Not Concur: | | |
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| Comments: | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

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|--|---|---|
| Property Name: Aircraft Rescue & Fire Fighting Bld. | Street Address: 1396 E Airport Way | City, County: North Bend, Coos |
| Original Use: Fire Station | Number of Associated Resources: 1 | |
| Architectural Classification / Resource Type: Contemporary | Building | Owner: <input type="checkbox"/> Private <input checked="" type="checkbox"/> Local Government <input type="checkbox"/> State <input type="checkbox"/> Federal |
| Window type and Materials: Fixed and sliding sash | Exterior Surface Materials: Primary: Concrete Block Secondary: Wood Sheet Decorative: Not Applicable | |
| Roof Type and Materials: Flat, shed, and side-gable; unknown and asphalt shingle | Construction Date: 1960 (<input type="checkbox"/> Circa) | |
| Integrity: <input type="checkbox"/> Excellent <input type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor | Architect/Builder (if known): Unknown | |
| Description of Property (including previous alterations & approximate dates): <p>This 1960, rectangular-plan, building has a two-story, concrete-block main portion, and two one-story wings: a concrete block portion and a frame addition. The main portion has a flat roof with narrow eaves and a plain frieze, and vertical columns define three bays on the front (northwest) facade. Two full-height bay doors in the south and central bays have metal-with-glazing overhead retractable doors. The north bay has metal sliding-sash and fixed windows and a metal-with-glazing entry door. A c.1975 side-gable addition on the southeast (side) elevation has wood-panel walls and bay openings with large metal overhead doors on its front (northeast) and rear (southwest) elevations. A shed-roof wing to the southeast (rear) elevation is devoid of fenestration except for a metal slab door within a recessed entrance. Alterations over time include the c.1975 addition, and addition of new wall cladding (wood paneling) and enclosing original windows at an unknown date.</p> | | |
| Determination of Eligibility, Justification, and Sources (Use continuation sheets if necessary): <p>This building was evaluated for listing in the National Register of Historic Places under Criterion A: History, Criterion B: Significant Persons, Criterion C: Architecture, and Criterion D: Information Potential.</p> <p>This land has been used as an airport since 1936, constructed largely with Works Progress Administration (WPA) and Civil Aeronautics Authority (CAA) funds. The Airport served as a Naval Auxiliary Air Station in WWII. In 1947 the property was returned to the city of North Bend and has since served as a municipal airport. This building was constructed in 1960 to replace an earlier outmoded fire station. The Airport became the Southwest Oregon Regional Airport in 2006.</p> <p>While this building has served as a fire safety building since its construction, it has no association with important contextual themes in the historic context: government/politics (Works Project Administration/Civil Aeronautics Authority) or military (Naval Auxiliary Air Station, North Bend). Further, research did not reveal an important association with transportation development of the Airport, nor did it play an important role in local, state, or national transportation trends or development. Due to the lack of association and importance, this building is not significant under Criterion A.</p> <p>Similarly, research did not reveal a direct association with people who made important contributions to the development of airport fire safety facilities, or airport development on a local, state, or national level. Thus, this building has no significance under Criterion B. (see continuation sheet, Aircraft Rescue & Fire Fighting Building)</p> | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|---|---------------------------------------|-----------------------------------|
| Property Name: Aircraft Rescue & Fire Fighting Bldg. | Street Address: 1396 E Airport Way | City, County: North Bend, Coos |
| <p>Description of project scope, and nature and extent of impacts:</p> <p>The Southwest Oregon Regional Airport (Airport) in North Bend, Oregon, and FAA, completed an Airport Master Plan in 2013 which demonstrated that improvements to the existing airfield are feasible, and will bring the airport in compliance with FAA design standards.</p> <p>The safety improvements to the Airport include adding an embankment to the NW end of Runway 4-22, at the confluence of Coos Bay and Pony Slough to meet FAA Runway Safety Area (RSA) standards. Other project activities include reconstructing the main general aviation apron pavement; removing taxiway connectors to enhance safety; installing maintenance improvements to approach lighting system (MALSR); and demolishing and reconstructing the Aircraft Rescue and Fire Fighting (ARFF) building.</p> | | |
| <p>Finding of Effect and justification:</p> <p>The proposed project will have no effect on a historic property. This property is not eligible for the National Register of Historic Places (NRHP) because it fails to meet Criterion A, B, C, or D. Due to the lack of eligibility of this property for listing in the NRHP, the proposed project will have No Effect.</p> | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

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|--|---------------------------------------|-----------------------------------|
| Property Name: Aircraft Rescue & Fire Fighting Bld. | Street Address: 1396 E Airport Way | City, County: North Bend, Coos |
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View: View to southwest.



View: to the northwest.

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

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|---|---------------------------------------|-----------------------------------|
| Property Name: Aircraft Rescue & Fire Fighting Bldg. | Street Address: 1396 E Airport Way | City, County: North Bend, Coos |
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Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties
Continuation Sheet

| | | |
|---|---------------------------------------|-----------------------------------|
| Property Name: Aircraft Rescue & Fire Fighting Bldg | Street Address: 1396 E Airport Way | City, County: North Bend, Coos |
| (Cont.) | | |
| <p>Determination of Eligibility, Justification, and Sources, Continued:</p> <p>This building is a modest example of a contemporary Fire Safety building. As such, the details are modest and reflect common building practices and do not serve as a representative example of an important architectural style. The property also does not exhibit distinctive features or construction methods that distinguish it from other properties either locally, regionally, or throughout the state. Alterations over time, including enclosing original fenestration, introduction of new wall cladding (wood paneling over concrete block), and c.1975 addition, have resulted in diminished physical integrity. Due to the lack of architectural importance and diminished integrity, this building is recommended not eligible under Criterion C: Architecture.</p> <p>Additionally, this property has not yielded, nor is it likely to yield, information important in history and does not have significance under Criterion D for built environment.</p> <p>Sources used to support this eligibility recommendation are provided in the Section B Bibliography of the report titled "Cultural Resources Survey and Evaluation, Safety Improvements Project, Southwest Regional Airport (OTH), City of North Bend, Coos County, Oregon".</p> | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

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|--|---------------------------------------|---|
| Property Name: FedEx Building | Street Address: 1141 E Airport Way | City, County: North Bend, Coos |
| Project Name: OTH Airport Safety Improvements | | Agency project #: |
| Agency: FAA | | SHPO Case#: |
| Location Coordinates (to sixth decimal place): Latitude: 43.414575 Longitude: -124.245404 | | Is the property listed in the National Register of Historic Places? <input type="checkbox"/> YES – Individually <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES – In a district |
|  | | |
| View to west/southwest. | | |
| Surveyor: Liz Boyer, Mead & Hunt, Inc.; Lyle Nakonechny, Transect Archeology | | Date Recorded: 1/18/2019 |
| National Register Findings: <input type="checkbox"/> Eligible: <input type="checkbox"/> Individually <input type="checkbox"/> As part of District NR Criteria: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input checked="" type="checkbox"/> Not Eligible: <input type="checkbox"/> Irretrievable integrity loss <input type="checkbox"/> Not 50 Years <input type="checkbox"/> Fails to meet NR Criteria | | Finding of Effect: <input checked="" type="checkbox"/> No Effect <input type="checkbox"/> No Adverse Effect <input type="checkbox"/> Adverse Effect |
| State Historic Preservation Office Comments – Official Use Only: Eligibility: <input type="checkbox"/> Concur <input type="checkbox"/> Do Not Concur: Effect: <input type="checkbox"/> Concur <input type="checkbox"/> Do Not Concur: | | |
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Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

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|--|--|---|
| Property Name: FedEx Building | Street Address: 1141 E Airport Way | City, County: North Bend, Coos |
| Original Use: Naval Facility | Number of Associated Resources: 1 | |
| Architectural Classification / Resource Type: Utilitarian | Building | Owner: <input type="checkbox"/> Private <input checked="" type="checkbox"/> Local Government <input type="checkbox"/> State <input type="checkbox"/> Federal |
| Window type and Materials: One-over-one fixed and hung sash, wood; vinyl, fixed | Exterior Surface Materials: Primary: Cement Fiber Siding Secondary: Horizontal Board Decorative: -select materials- | |
| Roof Type and Materials: Side-gable, metal and asphalt shingles | Construction Date: 1943 (<input checked="" type="checkbox"/> Circa) | |
| Integrity: <input type="checkbox"/> Excellent <input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor | Architect/Builder (if known): Unknown | |
| Description of Property (including previous alterations & approximate dates): This c.1943, one-story, frame, rectangular-plan building has a side-gable metal roof with narrow eaves and a central brick chimney. A lower one-story asphalt shingle covered gable portion extends to the northwest. Wall cladding includes asbestos, horizontal wood, and vertical metal panel siding. Windows are wood, one-over-one fixed and hung sash, with horizontal divides, and fixed vinyl replacements, all with simple wood trim. A recessed entrance with a metal-with-glazing door and sidelight and three vehicle bays are located on the front (southwest) facade. Alterations over time include the addition of siding material (asbestos shingles and metal panel siding), closing original fenestration, select window replacement, and removal of a shed-roof portion from the northwest elevation. | | |
| Determination of Eligibility, Justification, and Sources (Use continuation sheets if necessary): This building was evaluated for listing in the National Register of Historic Places under Criterion A: History, Criterion B: Significant Persons, Criterion C: Architecture, and Criterion D: Information Potential. This land has been used as an airport since 1936, constructed largely with Works Project Administration (WPA) and Civil Aeronautics Authority (CAA) funds. The Airport served as a Naval Auxiliary Air Station (Station) in WWII. This building was constructed c.1943. In 1947 the property was returned to the city of North Bend and has since served as a municipal airport. The Airport became the Southwest Oregon Regional Airport in 2006. This building's most noteworthy historical association is with World War II (WWII), and within this context, the building has served in a support capacity for the Station's primary mission as a naval administrative, operation, maintenance and training base. However, research did not reveal a direct association with any significant activities or events associated with WWII or other major themes developed in the historic context. Constructed after the initial Airport development, this building has no association with the government/politics area of significance. Further, research did not reveal this building played an important role within transportation development of the Airport, or North Bend. As such this building does not possess significance under Criterion A. Research did not reveal a direct association between this building and significant persons associated with (see continuation sheet, FedEx Building) | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|---|---------------------------------------|-----------------------------------|
| Property Name: FedEx Building | Street Address: 1141 E Airport Way | City, County: North Bend, Coos |
| <p>Description of project scope, and nature and extent of impacts:</p> <p>The Southwest Oregon Regional Airport (Airport) in North Bend, Oregon, and FAA, completed an Airport Master Plan in 2013 which demonstrated that improvements to the existing airfield are feasible, and will bring the airport in compliance with FAA design standards.</p> <p>The safety improvements to the Airport include adding an embankment to the NW end of Runway 4-22, at the confluence of Coos Bay and Pony Slough to meet FAA Runway Safety Area (RSA) standards. Other project activities include reconstructing the main general aviation apron pavement; removing taxiway connectors to enhance safety; installing maintenance improvements to approach lighting system (MALSR); and demolishing and reconstructing the Aircraft Rescue and Fire Fighting (ARFF) building.</p> | | |
| <p>Finding of Effect and justification:</p> <p>The proposed project will have no effect on a historic property. This property is not eligible for the National Register of Historic Places (NRHP) because it fails to meet Criterion A, B, C, or D. Due to the lack of eligibility of this property for listing in the NRHP, the proposed project will have No Effect.</p> | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|----------------------------------|---------------------------------------|-----------------------------------|
| Property Name: FedEx Building | Street Address: 1141 E Airport Way | City, County: North Bend, Coos |
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View: View to west/southwest.

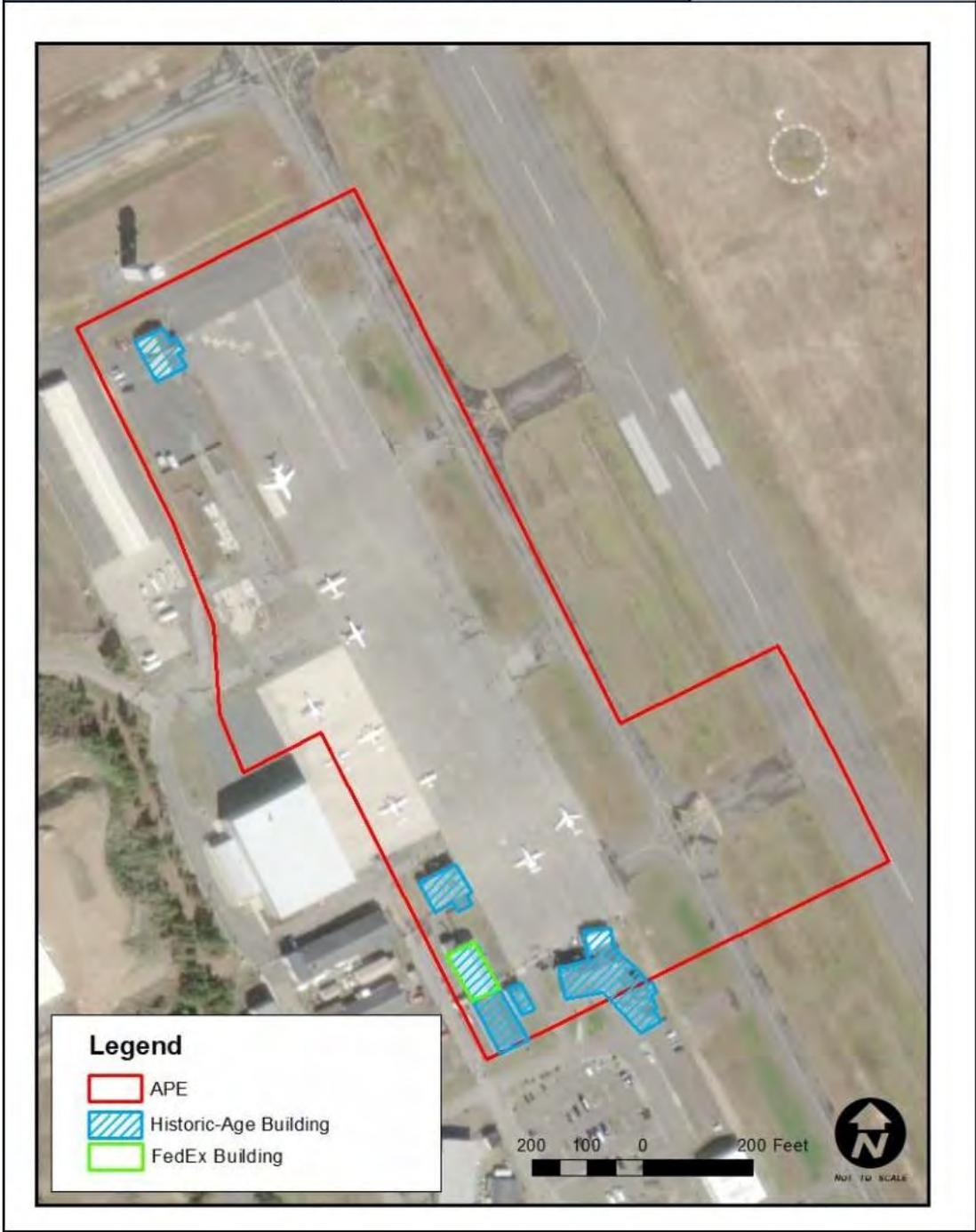


View: to the south.

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

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|----------------------------------|---------------------------------------|-----------------------------------|
| Property Name: FedEx Building | Street Address: 1141 E Airport Way | City, County: North Bend, Coos |
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Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties
Continuation Sheet

| | | |
|----------------------------------|---------------------------------------|-----------------------------------|
| Property Name: FedEx Building | Street Address: 1141 E Airport Way | City, County: North Bend, Coos |
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(Cont.)

Determination of Eligibility, Justification, and Sources, Continued:

the history or development of airport. Thus, this building does not possess significance under Criterion B.

This building is a modest example of a temporary military building. As a utilitarian warehouse, the details are modest and reflect common building practices and do not serve as a representative example of an important architectural style. The property also does not exhibit distinctive features or construction methods that distinguish it from other properties either locally, regionally, or throughout the state. Alterations over time, including replacement siding, roofing, windows, eliminating original fenestration and portions of the building, have resulted in diminished physical integrity. Due to the lack of architectural importance and diminished integrity, this building is recommended not eligible under Criterion C.

Additionally, this property has not yielded, nor is it likely to yield, information important in history and does not have significance under Criterion D for built environment.

Sources used to support this eligibility recommendation are provided in the Section B Bibliography of the report titled "Cultural Resources Survey and Evaluation, Safety Improvements Project, Southwest Regional Airport (OTH), City of North Bend, Coos County, Oregon".

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|--|---------------------------------------|---|
| Property Name: Seat Case Building | Street Address: 1100 E Airport Way | City, County: North Bend, Coos |
| Project Name: OTH Airport Safety Improvements | | Agency project #: |
| Agency: FAA | | SHPO Case#: |
| Location Coordinates (to sixth decimal place): Latitude: 43.414338 Longitude: -124.245218 | | Is the property listed in the National Register of Historic Places? <input type="checkbox"/> YES – Individually <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES – In a district |
|  | | |
| View to northeast. | | |
| Surveyor: Liz Boyer, Mead & Hunt, Inc.; Lyle Nakonechny, Transect Archeology | | Date Recorded: 1/18/2019 |
| National Register Findings: <input type="checkbox"/> Eligible: <input type="checkbox"/> Individually <input type="checkbox"/> As part of District NR Criteria: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input checked="" type="checkbox"/> Not Eligible: <input type="checkbox"/> Irretrievable integrity loss <input type="checkbox"/> Not 50 Years <input type="checkbox"/> Fails to meet NR Criteria | | Finding of Effect: <input checked="" type="checkbox"/> No Effect <input type="checkbox"/> No Adverse Effect <input type="checkbox"/> Adverse Effect |
| State Historic Preservation Office Comments – Official Use Only: Eligibility: <input type="checkbox"/> Concur <input type="checkbox"/> Do Not Concur: Effect: <input type="checkbox"/> Concur <input type="checkbox"/> Do Not Concur: | | |
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Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|---|---|-----------------------------------|
| Property Name: Seat Case Building | Street Address: 1100 E Airport Way | City, County: North Bend, Coos |
| Original Use: Naval Facility ▼ | Number of Associated Resources: 1 | |
| Architectural Classification / Resource Type: Utilitarian ▼ Building ▼ | Owner: <input type="checkbox"/> Private <input checked="" type="checkbox"/> Local Government <input type="checkbox"/> State <input type="checkbox"/> Federal | |
| Window type and Materials: Multi-light fixed and one-over-one hung sash, wood | Exterior Surface Materials: Primary: Cement Fiber Siding ▼ Secondary: Horizontal Board ▼ Decorative: -select materials- ▼ | |
| Roof Type and Materials: Side-gable and shed, asphalt shingles | Construction Date: 1943 (<input checked="" type="checkbox"/> Circa) | |
| Integrity: <input type="checkbox"/> Excellent <input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor | Architect/Builder (if known): Unknown | |
| Description of Property (including previous alterations & approximate dates): <p>This c.1943, one-story, frame, rectangular-plan building has a side-gable roof with narrow eaves covered with asphalt shingles. A low one-story shed-roof portion extends to the southeast. Walls are clad with asbestos shingles. Windows are wood, one-over-one hung sash, with horizontal divides and simple wood trim, some in pairs or triples. A large fixed multi-light window and a large bay door are set within a recessed porch with a raised concrete loading dock on the front (southwest) facade. The main entry is a wood panel door. Alterations over time include the addition of asbestos siding.</p> | | |
| Determination of Eligibility, Justification, and Sources (Use continuation sheets if necessary): <p>This building was evaluated for listing in the National Register of Historic Places under Criterion A: History, Criterion B: Significant Persons, Criterion C: Architecture, and Criterion D: Information Potential.</p> <p>This land has been used as an airport since 1936, constructed largely with Works Project Administration (WPA) and Civil Aeronautics Authority (CAA) funds. The Airport served as a Naval Auxiliary Air Station (Station) in WWII. This building was constructed c.1943. In 1947 the property was returned to the city of North Bend and has since served as a municipal airport. The Airport became the Southwest Oregon Regional Airport in 2006.</p> <p>This building's most noteworthy historical association is with World War II (WWII), and within this context, the building has served in a support capacity for the Station's primary mission as a naval administrative, operation, maintenance and training base. However, research did not reveal a direct association with any significant activities or events associated with WWII or other major themes developed in the historic context. Constructed after the initial Airport development, this building has no association with the government/politics area of significance. Further, research did not reveal this building played an important role within transportation development of the Airport, or North Bend. As such this building does not possess significance under Criterion A.</p> <p>(see continuation sheet, Seat Case Building)</p> | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|--|---------------------------------------|-----------------------------------|
| Property Name: Seat Case Building | Street Address: 1100 E Airport Way | City, County: North Bend, Coos |
| Description of project scope, and nature and extent of impacts: | | |
| <p>The Southwest Oregon Regional Airport (Airport) in North Bend, Oregon, and FAA, completed an Airport Master Plan in 2013 which demonstrated that improvements to the existing airfield are feasible, and will bring the airport in compliance with FAA design standards.</p> <p>The safety improvements to the Airport include adding an embankment to the NW end of Runway 4-22, at the confluence of Coos Bay and Pony Slough to meet FAA Runway Safety Area (RSA) standards. Other project activities include reconstructing the main general aviation apron pavement; removing taxiway connectors to enhance safety; installing maintenance improvements to approach lighting system (MALSR); and demolishing and reconstructing the Aircraft Rescue and Fire Fighting (ARFF) building.</p> | | |
| Finding of Effect and justification: | | |
| <p>The proposed project will have no effect on a historic property. This property is not eligible for the National Register of Historic Places (NRHP) because it fails to meet Criterion A, B, C, and D. Due to the lack of eligibility of this property for listing in the NRHP, the proposed project will have No Effect.</p> | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|--------------------------------------|---------------------------------------|-----------------------------------|
| Property Name: Seat Case Building | Street Address: 1100 E Airport Way | City, County: North Bend, Coos |
|--------------------------------------|---------------------------------------|-----------------------------------|



View: View to northeast.



View: to north/northwest

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|--------------------------------------|---------------------------------------|-----------------------------------|
| Property Name: Seat Case Building | Street Address: 1100 E Airport Way | City, County: North Bend, Coos |
|--------------------------------------|---------------------------------------|-----------------------------------|



Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties
Continuation Sheet

| | | |
|--|---------------------------------------|-----------------------------------|
| Property Name: Seat Case Building | Street Address: 1100 E Airport Way | City, County: North Bend, Coos |
| (Cont.) | | |
| <p>Determination of Eligibility, Justification, and Sources, Continued:</p> <p>Nor did research reveal a direct association between this building and significant persons associated with the history or development of airport. Thus, this building does not possess significance under Criterion B.</p> <p>This building is a modest example of a temporary military building. As a utilitarian warehouse, the details are modest and reflect common building practices and do not serve as a representative example of an important architectural style. The property also does not exhibit distinctive features or construction methods that distinguish it from other properties either locally, regionally, or throughout the state. Alterations over time, including replacement siding, roofing, windows, eliminating original fenestration and portions of the building, have resulted in diminished physical integrity. Due to the lack of architectural importance and diminished integrity, this building does not have significance under Criterion C.</p> <p>Additionally, this property has not yielded, nor is it likely to yield, information important in history and does not have significance under Criterion D for built environment.</p> <p>Sources used to support this eligibility recommendation are provided in the Section B Bibliography of the report titled "Cultural Resources Survey and Evaluation, Safety Improvements Project, Southwest Regional Airport (OTH), City of North Bend, Coos County, Oregon".</p> | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|--|---------------------------------------|---|
| Property Name: Electrical shed | Street Address: 1100 E Airport Way | City, County: North Bend, Coos |
| Project Name: OTH Airport Safety Improvements | | Agency project #: |
| Agency: FAA | | SHPO Case#: |
| Location Coordinates (to sixth decimal place): Latitude: 43.414438 Longitude: -124.245113 | | Is the property listed in the National Register of Historic Places? <input type="checkbox"/> YES – Individually <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES – In a district |
|  | | |
| View to southwest. | | |
| Surveyor: Liz Boyer, Mead & Hunt, Inc.; Lyle Nakonechny, Transect Archeology | | Date Recorded: 1/18/2019 |
| National Register Findings: <input type="checkbox"/> Eligible: <input type="checkbox"/> Individually <input type="checkbox"/> As part of District NR Criteria: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input checked="" type="checkbox"/> Not Eligible: <input type="checkbox"/> Irretrievable integrity loss <input type="checkbox"/> Not 50 Years <input type="checkbox"/> Fails to meet NR Criteria | | Finding of Effect: <input checked="" type="checkbox"/> No Effect <input type="checkbox"/> No Adverse Effect <input type="checkbox"/> Adverse Effect |
| State Historic Preservation Office Comments – Official Use Only: Eligibility: <input type="checkbox"/> Concur <input type="checkbox"/> Do Not Concur: Effect: <input type="checkbox"/> Concur <input type="checkbox"/> Do Not Concur: | | |
| RECEIVED STAMP | | |
| Signed _____ | | Date _____ |
| CONTACT INFORMATION STAMP | | |
| Comments: | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|--|---|---|
| Property Name: Electrical shed | Street Address: 1100 E Airport Way | City, County: North Bend, Coos |
| Original Use: Naval Facility ▼ | Number of Associated Resources: 1 | |
| Architectural Classification / Resource Type: Utilitarian ▼ | Building ▼ | Owner: <input type="checkbox"/> Private <input checked="" type="checkbox"/> Local Government <input type="checkbox"/> State <input type="checkbox"/> Federal |
| Window type and Materials: None visible | Exterior Surface Materials: Primary: Vinyl Siding ▼ Secondary: -select materials- ▼ Decorative: -select materials- ▼ | |
| Roof Type and Materials: Hip, metal | Construction Date: 1955 (<input checked="" type="checkbox"/> Circa) | |
| Integrity: <input type="checkbox"/> Excellent <input checked="" type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor | Architect/Builder (if known): Unknown | |
| Description of Property (including previous alterations & approximate dates): This c.1955, one-story, frame, L-plan building has a metal hip roof with moderate eaves. Walls are clad with vinyl siding. No windows are visible; several metal and vinyl vents are located on the building. The main entrance is a pair of metal-with-glazing doors on the front (southeast) facade; a secondary entrance is in the el. Alterations over time include replacement roofing and siding. | | |
| Determination of Eligibility, Justification, and Sources (Use continuation sheets if necessary): This building was evaluated for listing in the National Register of Historic Places under Criterion A: History, Criterion B: Significant Persons, Criterion C: Architecture, and Criterion D: Information Potential. This land has been used as an airport since 1936, constructed largely with Works Progress Administration (WPA) and Civil Aeronautics Authority (CAA) funds. The Airport served as a Naval Auxiliary Air Station in WWII. In 1947 the property was returned to the city of North Bend and has since served as a municipal airport. This building was constructed in c.1955. The Airport became the Southwest Oregon Regional Airport in 2006. While this building has served as an electrical shed since its construction, it has no association with important contextual themes in the historic context: government/politics (WPA/CAA) or military (Naval Auxiliary Air Station, North Bend), or transportation (Airport). As such, the building does not possess significance under Criterion A. Nor did research reveal a direct association with important persons associated with the history or development of the Airport. Thus, the building does not possess significance under Criterion B. This resource is a modest example of a utilitarian shed building. As such, the details are modest and reflect common building practices and do not serve as a representative example of an important architectural style. The property also does not exhibit distinctive features, or construction methods that distinguish it from (see continuation sheet, Electrical Shed) | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|---|---------------------------------------|-----------------------------------|
| Property Name: Electrical shed | Street Address: 1100 E Airport Way | City, County: North Bend, Coos |
| <p>Description of project scope, and nature and extent of impacts:</p> <p>The Southwest Oregon Regional Airport (Airport) in North Bend, Oregon, and FAA, completed an Airport Master Plan in 2013 which demonstrated that improvements to the existing airfield are feasible, and will bring the airport in compliance with FAA design standards.</p> <p>The safety improvements to the Airport include adding an embankment to the NW end of Runway 4-22, at the confluence of Coos Bay and Pony Slough to meet FAA Runway Safety Area (RSA) standards. Other project activities include reconstructing the main general aviation apron pavement; removing taxiway connectors to enhance safety; installing maintenance improvements to approach lighting system (MALSR); and demolishing and reconstructing the Aircraft Rescue and Fire Fighting (ARFF) building.</p> | | |
| <p>Finding of Effect and justification:</p> <p>The proposed project will have no effect. This property is not eligible for the National Register of Historic Places (NRHP) because it fails to meet Criterion A, B, C, and D. Due to the lack of eligibility of this property for listing in the NRHP, the proposed project will have No Effect.</p> | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|-----------------------------------|---------------------------------------|-----------------------------------|
| Property Name: Electrical shed | Street Address: 1100 E Airport Way | City, County: North Bend, Coos |
|-----------------------------------|---------------------------------------|-----------------------------------|



View: View to southwest.



View: to the southeast.

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|-----------------------------------|---------------------------------------|-----------------------------------|
| Property Name: Electrical shed | Street Address: 1100 E Airport Way | City, County: North Bend, Coos |
|-----------------------------------|---------------------------------------|-----------------------------------|



Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties
Continuation Sheet

| | | |
|-----------------------------------|--------------------------------------|-----------------------------------|
| Property Name: Electrical Shed | Street Address: 1100 Airport Lane | City, County: North Bend, Coos |
|-----------------------------------|--------------------------------------|-----------------------------------|

(Cont.)

Determination of Eligibility, Justification, and Sources, Continued:

other properties either locally, regionally, or throughout the state. Alterations over time, including replacement siding and roofing, have resulted in diminished physical integrity. Due to the lack of architectural importance and diminished integrity, this building is recommended not eligible under Criterion C.

Additionally, this property has not yielded, nor is it likely to yield, information important in history and does not have significance under Criterion D for built environment.

Sources used to support this eligibility recommendation are provided in the Section B Bibliography of the report titled "Cultural Resources Survey and Evaluation, Safety Improvements Project, Southwest Regional Airport (OTH), City of North Bend, Coos County, Oregon".

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|--|--------------------------------------|---|
| Property Name: Old Terminal, Coos Aviation Bldg. | Street Address: 1100 Airport Lane | City, County: North Bend, Coos |
| Project Name: OTH Airport Safety Improvements | | Agency project #: |
| Agency: FAA | | SHPO Case#: |
| Location Coordinates (to sixth decimal place): Latitude: 43.414549 Longitude: -124.244444 | | Is the property listed in the National Register of Historic Places? <input type="checkbox"/> YES – Individually <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES – In a district |
|  | | |
| View to north/northeast. | | |
| Surveyor: Liz Boyer, Mead & Hunt, Inc.; Lyle Nakonechny, Transect Archeology | | Date Recorded: 1/18/2019 |
| National Register Findings: <input type="checkbox"/> Eligible: <input type="checkbox"/> Individually <input type="checkbox"/> As part of District NR Criteria: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input checked="" type="checkbox"/> Not Eligible: <input type="checkbox"/> Irretrievable integrity loss <input type="checkbox"/> Not 50 Years <input type="checkbox"/> Fails to meet NR Criteria | | Finding of Effect: <input checked="" type="checkbox"/> No Effect <input type="checkbox"/> No Adverse Effect <input type="checkbox"/> Adverse Effect |
| State Historic Preservation Office Comments – Official Use Only: Eligibility: <input type="checkbox"/> Concur <input type="checkbox"/> Do Not Concur: Effect: <input type="checkbox"/> Concur <input type="checkbox"/> Do Not Concur: | | |
| RECEIVED STAMP | | |
| Signed _____ | | Date _____ |
| CONTACT INFORMATION STAMP | | |
| Comments: | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|---|---|-----------------------------------|
| Property Name: Old Terminal, Coos Aviation Bldg. | Street Address: 1100 Airport Lane | City, County: North Bend, Coos |
| Original Use: Air Facility ▼ | Number of Associated Resources: 1 | |
| Architectural Classification / Resource Type: Contemporary ▼ Building ▼ | Owner: <input type="checkbox"/> Private <input checked="" type="checkbox"/> Local Government <input type="checkbox"/> State <input type="checkbox"/> Federal | |
| Window type and Materials: Fixed, metal | Exterior Surface Materials: Primary: Concrete Block ▼ Secondary: Synthetic Wood Siding ▼ Decorative: -select materials- ▼ | |
| Roof Type and Materials: Complex, metal | Construction Date: 1962 (<input type="checkbox"/> Circa) | |
| Integrity: <input type="checkbox"/> Excellent <input checked="" type="checkbox"/> Good <input checked="" type="checkbox"/> Fair <input type="checkbox"/> Poor | Architect/Builder (if known): Unknown | |
| Description of Property (including previous alterations & approximate dates): <p>This 1962, irregular-plan, one-story building has a two-story portion on the northwest elevation. The complex metal roof has a wide frieze. The roof is predominantly hip with a false parapet and a gable over entrances on the front southeast and southwest facades. A hexagonal-roof tower and a pyramidal-roof tower frame the two-story portion, and a rectangular one-story extension to the northwest has a faux-mansard roof. Walls are concrete block and composite wood siding. Windows are metal fixed-sash, and the southeast facade has a metal-framed window wall with round concrete columns. The main entrance is a pair of metal-and-glazing doors and secondary entrances are metal slab doors with transom. The foundation is a poured concrete slab. Alterations over time include replacement roofing, siding and windows.</p> | | |
| Determination of Eligibility, Justification, and Sources (Use continuation sheets if necessary): <p>This building was evaluated for listing in the National Register of Historic Places under Criterion A: History, Criterion B: Significant Persons, Criterion C: Architecture, and Criterion D: Information Potential.</p> <p>This land has been used as an airport since 1936, constructed largely with Works Progress Administration (WPA) and Civil Aeronautics Authority (CAA) funds. The Airport served as a Naval Auxiliary Air Station in WWII. In 1947 the property was returned to the city of North Bend and has since served as a municipal airport. This building was constructed in 1962. The Airport became the Southwest Oregon Regional Airport in 2006.</p> <p>While this building has served as a terminal building until 2008, it has no association with important contextual themes in the historic context: government/politics (WPA/CAA) or military (Naval Auxiliary Air Station, North Bend). Further, research did not reveal this building played an important role within transportation development of the Airport, or North Bend. Thus the building does not possess significance under Criterion A. Nor did research reveal a direct association with important persons associated with the history or development of the Airport, and the building does not possess significance under Criterion B.</p> <p>This building is a modest example of a contemporary airport terminal building. As such, the details are muted and reflect common building practices and do not serve as a representative example of an important</p> <p>(see continuation sheet, Old Terminal, Coos Aviation Bldg.)</p> | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|---|--------------------------------------|-----------------------------------|
| Property Name: Old Terminal, Coos Aviation Bldg. | Street Address: 1100 Airport Lane | City, County: North Bend, Coos |
| <p>Description of project scope, and nature and extent of impacts:</p> <p>The Southwest Oregon Regional Airport (Airport) in North Bend, Oregon, and FAA, completed an Airport Master Plan in 2013 which demonstrated that improvements to the existing airfield are feasible, and will bring the airport in compliance with FAA design standards.</p> <p>The safety improvements to the Airport include adding an embankment to the NW end of Runway 4-22, at the confluence of Coos Bay and Pony Slough to meet FAA Runway Safety Area (RSA) standards. Other project activities include reconstructing the main general aviation apron pavement; removing taxiway connectors to enhance safety; installing maintenance improvements to approach lighting system (MALSR); and demolishing and reconstructing the Aircraft Rescue and Fire Fighting (ARFF) building.</p> | | |
| <p>Finding of Effect and justification:</p> <p>The proposed project will have no effect on historic properties. This property is not eligible for the National Register of Historic Places (NRHP) because it fails to meet Criterion A, B, C, or D. Due to the lack of eligibility of this property for listing in the NRHP, the proposed project will have No Effect.</p> | | |

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties

| | | |
|---|--------------------------------------|-----------------------------------|
| Property Name: Old Terminal, Coos Aviation Bldg. | Street Address: 1100 Airport Lane | City, County: North Bend, Coos |
|---|--------------------------------------|-----------------------------------|



View: View to north/northeast.



View: to the northwest.

Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties



Section C
Historical Resources

OREGON INVENTORY OF HISTORIC PROPERTIES
SECTION 106 DOCUMENTATION FORM
Individual Properties
Continuation Sheet

| | | |
|---|--------------------------------------|-----------------------------------|
| Property Name: Old Terminal, Coos Aviation Bldg. | Street Address: 1100 Airport Lane | City, County: North Bend, Coos |
| (Cont.) | | |
| <p>Determination of Eligibility, Justification, and Sources, Continued:</p> <p>architectural style. The property also does not exhibit distinctive features or construction methods that distinguish it from other properties either locally, regionally, or throughout the state. Alterations over time, including replacement siding, roofing, and windows, have resulted in diminished physical integrity. Due to the lack of architectural importance and diminished integrity, this building does not possess significance under Criterion C.</p> <p>Additionally, this property has not yielded, nor is it likely to yield, information important in history and does not have significance under Criterion D for built environment.</p> <p>Sources used to support this eligibility recommendation are provided in the Section B Bibliography of the report titled "Cultural Resources Survey and Evaluation, Safety Improvements Project, Southwest Regional Airport (OTH), City of North Bend, Coos County, Oregon".</p> | | |

Appendix A. Correspondence



Oregon
Kate Brown, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE Ste C
Salem, OR 97301-1266
Phone (503) 986-0690
Fax (503) 986-0793
www.oregonheritage.org



January 4, 2019

Mr. Sean Callahan
FAA - NW Mountain Region
Seattle Airports Dist Off
1601 Lind Ave SW, Ste 250
Renton, WA 98057-3356

RE: SHPO Case No. 17-1582

FAA, Southwest Oregon Regional Airport, Runway 4-22 Safety Area Project
Correct deficiencies
1100 Airport Lane, North Bend, Coos County

Dear Mr. Callahan:

Our office has recently received a letter from your agency requesting concurrence regarding your Area of Potential Effect (APE) boundaries for the project referenced above. Upon review of your letter/ document, we concur with the proposed project's APE boundaries. Please be advised there are 2 known historic properties in the project area and one report of a potential precontact village in the project area.

Our office looks forward to receiving a copy of the cultural resource survey report for the project once it has been completed. Under federal and state law archaeological sites, objects, and human remains are protected on both public and private lands in Oregon. If you have not already done so, be sure to consult with all appropriate Indian tribes regarding your proposed project. If you have any questions or comments regarding this letter, please do not hesitate to contact me. In order to help us track your project accurately, please be sure to reference the SHPO case number above in all correspondence.

This letter refers to archaeological resources only. Comments pursuant to a review for above-ground historic resources will be sent separately.

Sincerely,

Jamie French, M.A.
SHPO Archaeologist
(503) 986-0729
Jamie.French@oregon.gov



Oregon
Kate Brown, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE Ste C
Salem, OR 97301-1266
Phone (503) 986-0690
Fax (503) 986-0793
www.oregonheritage.org



May 23, 2019

Mr. Sean Callahan
FAA - NW Mountain Region
Seattle Airports Dist Off
1601 Lind Ave SW, Ste 250
Renton, WA 98057-3356

RE: SHPO Case No. 17-1582

FAA, Southwest Oregon Regional Airport, Runway 4-22 Safety Area Project
Correct deficiencies
1100 Airport Lane, North Bend, Coos County

Dear Mr. Callahan:

We have reviewed the materials submitted on the project referenced above, and we concur with the following determinations of eligibility:

- Southwest Oregon Regional Airport: not eligible as a historic district. Please note that the World War II-era buildings located outside of the Area of Potential Effect (APE) may need to be evaluated individually if future projects could have effects.
- REACH Air Ambulance: not individually eligible.
- Aircraft Rescue & Fire Fighting Building: not individually eligible.
- FedEx Building: not individually eligible due.
- Seat Case Building: not individually eligible.
- Electrical Shed: not individually eligible.
- Old Terminal, Coos Aviation Building: not individually eligible.

We also concur that the proposed undertaking will result in no historic properties affected. This letter refers to above-ground historic resources only. Comments pursuant to a review for archaeological resources will be sent separately.

Unless project actions change, this concludes the requirement for consultation with our office under Section 106 of the National Historic Preservation Act (per 36 CFR Part 800) for above-ground historic properties. Local regulations, if any, still apply and review under local ordinances may be required. Please feel free to contact me if you have any questions, comments, or need additional assistance.

Sincerely,

Tracy Schwartz
Historic Preservation Specialist
(503) 986-0677
tracy.schwartz@oregon.gov



COQUILLE INDIAN TRIBE

3050 Tremont Ave. North Bend, OR 97459
Telephone: (541) 756-0904 ~ Fax: (541) 756-0847
www.coquilletribe.org

June 10, 2019

Sean Callahan
Environmental Protection Specialist
F.A.A. – Northwest Mountain Region
Seattle Airports District Office
2200 S. 216th Street, Des Moines, WA. 98198

Project location: The Runway 4-22 RSA; Taxiway Connectors; General Aviation Aprons; Aircraft Rescue and Fire Fighting (ARFF) Building; Medium Intensity Approach Lighting System (MALSR); Glide Slope

Thank you for the opportunity to comment on the proposal for the projects at the above referenced locations. The Coquille Indian Tribe THPO concurs with the anticipatory finding of no adverse effect to historic properties/cultural resources. **Extreme caution is recommended.** If any known or suspected cultural resources are encountered during the work, ground-disturbing activities should cease and the landowner or contractor should contact our office immediately.

Please be aware that state statutes and federal law governs how archaeological sites are to be managed. 43 CFR 10 applies on tribal and federal lands, federal projects, federal agencies, as well as to federal actions and federally funded (directly or indirectly) projects. ORS 97.745 prohibits the willful removal, mutilation, defacing, injury, or destruction of any cairn, burial, human remains, funerary objects, or objects of cultural patrimony of a Native Indian. ORS 358.920 prohibits excavation, injury, destruction, or alteration of an archaeological site or object, or removal of an archaeological object from public or private lands. If archaeological materials are discovered, uncovered, or disturbed on the property, we will discuss the appropriate actions with all necessary parties.

Thank you again and feel free to contact me at (541) 217-5721 if you have any questions.

Best,

Todd Martin
Tribal Historic Preservation Specialist

Appendix N
USDA NRCS Web Soil Survey



A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Coos County, Oregon



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

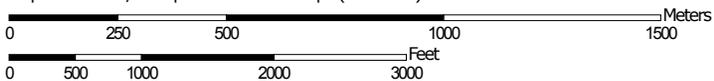
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:17,300 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Coos County, Oregon
 Survey Area Data: Version 13, Sep 17, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Sep 15, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|------------------------------------|---|--------------|----------------|
| 8B | Bullards sandy loam, 0 to 7 percent slopes | 17.7 | 2.7% |
| 23 | Fluvaquents-Histosols complex | 24.0 | 3.6% |
| 43D | Netarts loamy fine sand, 2 to 30 percent slopes | 14.8 | 2.2% |
| 57 | Udorthents, level | 299.6 | 45.1% |
| 59D | Waldport fine sand, 0 to 30 percent slopes | 103.2 | 15.5% |
| W | Water | 205.0 | 30.9% |
| Totals for Area of Interest | | 664.2 | 100.0% |

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Coos County, Oregon

8B—Bullards sandy loam, 0 to 7 percent slopes

Map Unit Setting

National map unit symbol: 21rc
Elevation: 30 to 1,600 feet
Mean annual precipitation: 55 to 100 inches
Mean annual air temperature: 45 to 54 degrees F
Frost-free period: 100 to 245 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Bullards and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bullards

Setting

Landform: Marine terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed eolian and marine deposits

Typical profile

Oi - 0 to 3 inches: slightly decomposed plant material
H1 - 3 to 10 inches: sandy loam
H2 - 10 to 44 inches: gravelly sandy loam
H3 - 44 to 63 inches: sand

Properties and qualities

Slope: 0 to 7 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Forage suitability group: Well Drained <15% Slopes (G004AY014OR)
Hydric soil rating: No

Minor Components

Blacklock

Percent of map unit: 9 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread

Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Bandon

Percent of map unit: 8 percent
Landform: Marine terraces
Hydric soil rating: No

Templeton

Percent of map unit: 8 percent
Hydric soil rating: No

23—Fluvaquents-Histosols complex**Map Unit Setting**

National map unit symbol: 21mz
Elevation: 0 feet
Mean annual precipitation: 55 to 70 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 200 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Fluvaquents and similar soils: 50 percent
Histosols and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fluvaquents**Setting**

Landform: Tidal flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Organic material and estuarine deposits

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: None

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydric soil rating: Yes

Description of Histosols

Setting

Landform: Tidal flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Organic material

Typical profile

Oe - 0 to 7 inches: mucky peat
Oa1 - 7 to 13 inches: muck
Oa2 - 13 to 20 inches: muck
2C1 - 20 to 32 inches: silt loam
2C2 - 32 to 60 inches: mucky silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water storage in profile: Very high (about 15.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Fluvaquents, nontidal

Percent of map unit: 10 percent
Landform: Flood plains
Hydric soil rating: Yes

43D—Netarts loamy fine sand, 2 to 30 percent slopes

Map Unit Setting

National map unit symbol: 21p3
Elevation: 0 to 600 feet
Mean annual precipitation: 50 to 100 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 180 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Netarts and similar soils: 75 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Netarts

Setting

Landform: Dunes

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Eolian deposits

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material

H1 - 1 to 5 inches: loamy fine sand

H2 - 5 to 31 inches: fine sand

H3 - 31 to 61 inches: fine sand

Properties and qualities

Slope: 2 to 30 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Waldport

Percent of map unit: 7 percent

Hydric soil rating: No

Bullards

Percent of map unit: 6 percent

Hydric soil rating: No

Dune land

Percent of map unit: 6 percent

Hydric soil rating: No

Heceta

Percent of map unit: 6 percent

Landform: Deflation basins on dunes

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: Yes

57—Udorthents, level**Map Unit Composition**

Udorthents and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents**Setting**

Landform: Flood plains, tidal flats, marshes

Landform position (three-dimensional): Tread, talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium, dredging spoil, dune sand, and wood chips

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

59D—Waldport fine sand, 0 to 30 percent slopes**Map Unit Setting**

National map unit symbol: 21q8

Elevation: 0 to 300 feet

Mean annual precipitation: 50 to 100 inches

Mean annual air temperature: 48 to 54 degrees F

Frost-free period: 180 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Waldport and similar soils: 75 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Waldport**Setting**

Landform: Dunes

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Eolian sands

Typical profile

H1 - 0 to 7 inches: fine sand
H2 - 7 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 30 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components**Heceta**

Percent of map unit: 9 percent
Landform: Deflation basins on dunes
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Dune land

Percent of map unit: 8 percent
Hydric soil rating: No

Netarts

Percent of map unit: 8 percent
Hydric soil rating: No

W—Water**Map Unit Composition**

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix O-1
Agency Coordination List

| Agency Name | Contact Person | | | | | Correspondence Log | | |
|--|--|---|--|---|--|---|--|-----------|
| | Name | Phone | Email | Website | Address | Document Name/Description | Date | |
| City of North Bend | Chelsea Schnabel | 541-756-8535 | cschnabel@northbendcity.org | https://www.northbendoregon.us/ | 835 California Ave. North Bend, OR 97459 | OTH Tsunami Zone Compliance | 5/30/2019 | |
| | | | | | | LUCS - JPA | 9/17/2021 | |
| Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians | Courtney Krossman | 541-888-9577 ext. 7547 | ckrossman@ctclusi.org | https://ctclusi.org/ | 1245 Fulton Ave. Coos Bay, OR 97420 | FAA Initiation w/ the Tribes for North Bend RSA Improvement Project | 12/28/2018 | |
| | | | | | | North Bend - RSA Improvement Coord. Letter, 2017 09 12 OTH Scoping, Agency Contact List | 10/1/2017 | |
| | | | | | | | North Bend Airport Government to Government Consultation | 5/30/2019 |
| | | | | | | | | 5/30/2019 |
| | | | | | | | | 6/13/2019 |
| | | | | | | | | 6/20/2019 |
| | | | | | | | | 8/19/2020 |
| | 2/22/2021 | | | | | | | |
| | FW: OTH RSA EA - 106 consultation - mitigation addendum submitted to SHPO & tribes | 5/26/2021 | | | | | | |
| Confederated Tribes of the Grand Ronde Community of Oregon | Cheryl K. Pouley | 503-879-1667 | cheryl.pouley@grandronde.org | grandronde.org | 9615 Grand Ronde Road Grand Ronde, OR 97347 | Archeological Surveys at OTH (Response) | 1/24/2019 | |
| Confederated Tribes of the Warm Springs Reservation of Oregon (CTWS) | Christian Nauer | 541.553.2026 | christian.nauer@ctwsbnr.org | https://warmsprings-nsn.gov/ | 1233 Veterans Street PO Box C Warm Springs, OR 97761 | OTH Tribal Consultation email response | 5/18/2020 | |
| Coos County Airport District | Helen Mineau | 541-267-3685 | helenmineau@mail.com | https://cooscountyairportdistrict.com/ | 2670 Broadway St. North Bend, OR 97459 | OTH EA Open House #1 | 5/30/2019 | |
| Coos County Planning Department | Jill Rolfe | 541-396-7770 | planning@co.coos.or.us | http://www.co.coos.or.us/Departments/Planning.aspx | 250 North Baxter Street Coquille, OR 97423 | OTH EA Discussion / Overview of EA and Map | 1/31/2020 | |
| Coquille Indian Tribe | Kassandra Rippee | 541-808-5554 | kassandraripee@coquilletribe.org | www.coquilletribe.org | 495 Miluk Drive Coos Bay, OR 97420 | FAA Initiation w/ the Tribes for North Bend RSA Improvement Project | 12/28/2018 | |
| | Todd Martin | 541-217-5721 | | www.coquilletribe.org | 3050 Tremont Ave. North Bend, OR 97459 | CRT19119_North Bend Airport Projects_Sean Callahan | 6/10/2019 | |
| | | | | | | Coquille Comment re: APP0062768 | 9/8/2020 | |
| Federal Aviation Administration | Sean Callahan | 206-231-4143 | sean.callahan@faa.gov | faa.gov | 2200 S. 216th St. Des Moines, WA 98198 | North Bend Airport Government to Government Consultation | 5/1/2019 | |
| | | | | | | North Bend Project Cultural Survey Submittal | 5/1/2019 | |
| | | | | | | | 4/29/2020 | |
| | | | | | | | 4/29/2020 | |
| | | FAA Response to NMFS EFH Conservation Recommendations | 8/18/2020 | | | | | |
| | Ilon Elizabeth Logan | 206-231-4220 | ilon.logan@faa.gov | faa.gov | 2200 S. 216th St. Des Moines, WA 98198 | Gov't-to-Gov't Tribal Consultation, Section 106 of NHPA | 5/21/2021 | |
| | | | | | | SHPO Case No. 17-1582 Cover Letter | 5/25/2021 | |
| FW: OTH RSA EA - 106 consultation - mitigation addendum submitted to SHPO & tribes | | | | | | 5/26/2021 | | |
| | | | | | | FW: OTH RSA EA - 106 consultation - mitigation addendum submitted to SHPO & tribes | 5/26/2021 | |

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|--|---------------------------------------|--------------|--|---|--|---|------------|
| | | | | | | FW: OTH RSA EA - 106 consultation - mitigation addendum submitted to SHPO & tribes | 5/26/2021 |
| | Timothy Stott | 206-231-2693 | timothy.stott@faa.gov | faa.gov | 2200 S. 216th St. Des Moines, WA 98198 | North Bend (OTH) MALSR Project | 4/9/2018 |
| Field Representative for Peter DeFazio | Kathy Erickson | 541-269-2609 | kathy.erickson@mail.house.gov | https://defazio.house.gov/ | 125 Central Room, Room 350 Coos Bay, OR 97420 | OTH EA Open House #1 | 5/30/2019 |
| Fish and Wildlife Service | Jim Thrailkill | 541-975-3470 | jim_thrailkill@fws.gov | www.fws.gov | 777 Garden Valley Blvd Roseburg, OR 97471 | Southwest Oregon Regional Airport - Runway Safety Area Improvements EA Agency Scoping Meeting | 9/19/2017 |
| Jordan Cove | Donna Nichols | 541-266-7510 | dnichols@pembina.com | http://www.pembina.com/ | 201 Central Ave. Coos Bay, OR 97420 | OTH EA Open House #1 | 5/30/2019 |
| Kaizen PreConsultation Meeting | | | | | | | 9/20/2017 |
| Mead & Hunt, Inc. | Aaron Killgore | 503-307-3712 | aaron.killgore@meadhunt.com | meadhunt.com | 9600 NE Cascades Pkwy Portland, OR 97220 | Archeological Surveys at OTH | 12/28/2018 |
| | | | | | | Cultural Resources Addendum | 5/1/2021 |
| NOAA | Chuck Wheeler, Fisheries Biologist | 541-957-3379 | chuck.wheeler@noaa.gov | www.noaa.gov | 2900 Stewart Parkway Roseburg, OR 97471 | Southwest Oregon Regional Airport - Runway Safety Area Improvements EA Agency Scoping Meeting | 9/12/2017 |
| | Kim W. Kratz | 503-231-2155 | kim.kratz@noaa.gov | www.noaa.gov | 2900 Stewart Parkway Roseburg, OR 97471 | ESA Section 7(a)(2) Biological Opinion | 7/29/2020 |
| City of North Bend, WA | David Miller | 425-888-7640 | dmiller@northbendwa.gov | www.northbendwa.gov | 920 SE Cedar Falls Way PO Box 896 North Bend, WA 98045 | Southwest Oregon Regional Airport - Runway Safety Area Improvements EA Agency Scoping Meeting | 9/19/2017 |
| Oregon Department of Land Conservation & Development | Matt Spangler | 541-574-1095 | matt.spangler@state.or.us | https://www.oregon.gov/lcd/Pages/index.aspx | 635 Capitol Street NE, Ste 150 Salem, OR 97301 | OTH Runway EA | 1/22/2019 |
| | | | | | | JPA Pre-application Kaizen | 9/20/2017 |
| Oregon Department of Aviation | Heather Peck | 503-378-3168 | heather.peck@aviation.state.or.us | https://www.oregon.gov/aviation | 3040 25th Street SE Salem, OR 97302 | Southwest Oregon Regional Airport - Runway Safety Area Improvements EA Agency Scoping Meeting | 9/19/2017 |
| Oregon Department of Environmental Quality | Sara Christensen | 503-229-5051 | christensen.sara@deq.state.or.us | https://www.oregon.gov/deq/pages/index.aspx | 700 NE Multnomah St. Ste 600 Portland, OR 97232 | Southwest Oregon Regional Airport - Runway Safety Area Improvements EA Agency Scoping Meeting | 9/19/2017 |
| | Haley Teach | 503-229-5051 | Haley.TEACH@state.or.us | https://www.oregon.gov/deq/pages/index.aspx | 700 NE Multnomah St. Ste 600 Portland, OR 97232 | DEQ 401 WQC for Southern Oregon Regional Airport Runway Safety Area Bulkhead (2017-337) | 9/11/2020 |
| | Steve Mrazik | 503-229-5263 | | https://www.oregon.gov/deq/pages/index.aspx | 700 NE Multnomah St. Ste 600 Portland, OR 97232 | Nationwide 401 Water Quality Certification Approval | 9/11/2020 |
| | | | | | | Nationwide 401 Water Quality Certification Approval; NWP Categories 3, 14, and 27 | 9/11/2020 |

| | | | | | | | |
|--|--|----------------|--|---|---|---|--------------------|
| Oregon Department of Fish and Wildlife Service | Steve Rumrill | 541-867-0300 | steven.s.rumrill@state.or.us | https://www.dfw.state.or.us/ | 2040 SE Marine Science Dr. Newport, OR 97365 | OTH EA Open House #1 | 5/30/2019 |
| Oregon Department of State Lands | Amber McKernan | 541-388-6345 | amber.mckernan@state.or.us | www.oregon.gov/dsl | 1645 NE Forbes Rd., Ste. 112 Bend, OR 97701 | DSL submerged lands update | 10/9/2019 |
| | | | | | | OTH - Possible submerged land acquisition for RSA | 10/9/2019 |
| | Jacob Taylor, Proprietary Coordinator for Coos | 503-986-5303 | jacob.taylor@state.or.us | www.oregon.gov/dsl | 1645 NE Forbes Rd., Ste. 112 Bend, OR 97701 | OTH - Possible submerged land acquisition for RSA | 10/9/2019 |
| | | | | | | DSL Proprietary Permit Authorization | 7/28/2020 |
| | Bob Lobdell | 503-986-5282 | bob.lobdell@state.or.us | www.oregon.gov/dsl | 1645 NE Forbes Rd., Ste. 112 Bend, OR 97701 | Southwest Oregon Regional Airport - Runway Safety Area Improvements EA Agency Scoping Meeting | 9/19/2017 |
| | | | | | | JPA Coordination | 8/1/2020 - 2021 |
| | | | | | | JPA Pre-application Kaizen | 6/1/2020 |
| | | | | | | CTCLUSI Comments re: APP0062768 | 9/18/2020 |
| | Lynne McAllister | 503-986-5300 | lynne.mcallister@state.or.us | https://www.oregon.gov/DSL/Pages/index.aspx | | | 1/1/2019 |
| | Peter Ryan | 503-986-5200 | peter.ryan@state.or.us | www.oregon.gov/dsl | 775 Summer St. NE, Ste. 100 Salem, OR 97301 | WD20190260 Agency Decision | 10/15/2019 |
| | Lauren Brown | 503 302 3290 | Lauren.brown@dsl.state.or.us | | | | |
| Oregon Parks & Recreation Department (State Preservation Office) | Tracy Schwartz | (503) 986-0677 | tracy.schwartz@oregon.gov | www.oregonheritage.org | 725 Summer St. NE Ste C Salem, OR 97301-1266 | SHPO Case No. 17-1582 | 5/23/2019 |
| | Jamie French | (503) 986-0729 | jamie.french@oregon.gov | www.oregonheritage.org | 725 Summer St. NE Ste C Salem, OR 97301-1266 | SHPO Case No. 17-1582 | 1/4/2019 |
| | Tracy Schwartz | (503) 986-0677 | tracy.schwartz@oregon.gov | www.oregonheritage.org | 725 Summer St. NE Ste C Salem, OR 97301-1266 | SHPO Case No. 17-1582 | 12/26/2018 |
| | Robert Olguin | | robert.olguin@oregon.gov | oregon.gov | 725 Summer St. NE Ste C Salem, OR 97301-1266 | Q'alya ta Kukwis shichdii me Traditional Cultural Property Historic District Nomination | 2/21/2019 |
| | | | | | | Q'alya ta Kukwis shichdii me Traditional Cultural Property Historic District Nomination | 5/8/2019 |
| | Ian Johnson | 503-986-0678 | ian.johnson@oregon.gov | oregon.gov | 725 Summer St. NE Ste C Salem, OR 97301-1266 | OPRD News Release re: NPS returns proposed TCP nomination | 7/11/2019 |
| | Christine Curran | | | oregonheritage.org | 726 Summer St. NE Ste C Salem, OR 97301-1266 | Status of proposed National Register nomination for TCPHD | 12/9/2019 |
| | | | | | Cultural Resources Addendum | 5/1/2021 | |
| Oregon Parks and Rec. Department, Heritage Division | Mary Beth Grover | 503-986-0672 | marybeth.grover@oregon.gov | www.oregon.gov/ | 725 Summer St. NE Ste C Salem, OR 97301-1266 | Below ground letter (archaeological resources) for SHPO | 10/29/2019 |
| | | | | www.oregon.gov/ | 726 Summer St. NE Ste C Salem, OR 97301-1266 | National Register, Q'alya ta Kukwis shichdii me (Jordan Cove and the Bay of the Coos People) Traditional Cultural Property Historic District | 1/31/2019 |
| Oregon SHPO | | | ORSHPO.clearance@oregon.gov | www.oregonheritage.org | 725 Summer St. NE Ste C Salem, OR 97301-1266 | FAA Initiation of Consultation w/ SHPO on North Bend RSA Improvement Project | 12/7/2018 |
| PBS Coos Bay | Paul Slater | 541-266-8200 | paul.slater@pbsusa.com | https://www.pbsenv.com/ | | 20170921 OTH Agency Scoping Meeting | 9/19/2017 |

| | | | | | | | |
|--|--------------------|--------------|--|---|--|--|--------------------------|
| Port of Coos Bay | Joe Caruso | | icaruso@portofcoosbay.org | https://www.portofcoosbay.com/ | 125 Central Ave., Ste 300 Coos Bay, OR 541-267-7678 | Southwest Oregon Regional Airport - Runway Safety Area Improvements EA Agency Scoping Meeting | 9/19/2017 |
| | Rick Adamek | | radamek@portofcoosbay.com | https://www.portofcoosbay.com/ | 125 Central Ave., Ste 300 Coos Bay, OR 541-267-7678 | | |
| | John Buckley | | jbuckley@portofcoosbay.com | https://www.portofcoosbay.com/ | 125 Central Ave., Ste 300 Coos Bay, OR 541-267-7678 | | |
| State of Oregon | Evan Haas | | haas.evan@state.or.us | https://www.oregon.gov/ | | Southwest Oregon Regional Airport - Runway Safety Area Improvements EA | 9/19/2017 |
| | Dave Perry | | dave.perry@state.or.us | https://www.oregon.gov/ | | Southwest Oregon Regional Airport - Runway Safety Area Improvements EA | 9/19/2017 |
| | Christopher Claire | | christopher.w.claire@state.or.us | https://www.oregon.gov/ | | Southwest Oregon Regional Airport - Runway Safety Area Improvements EA Agency Scoping Meeting | 9/19/2017 |
| | Deanna Caracciolo | 503-934-0026 | deanna.caracciolo@state.or.us | https://www.oregon.gov/ | | OTH EA Project Description OR DLCD CMZA Coord. | 11/14/2019 11/14/2019 |
| United States Department of the Interior, National Park Service | Joy Beasley | | | | 1849 C Street, N.W. Washington, D.C. 20240 | Proposed National Register Nomination for the Q'alya ta Kukwis shichdii me Traditional Cultural Property Historic District, Coos Co., Oregon | 7/2/2019 |
| U.S. Department of Fish & Wildlife | Paul Henson | 503-231-6179 | | https://www.fws.gov/ | 2600 SE 98th Ave., Ste. 100 Portland, OR 97266 | Copy of Inal OTH TA Letter 3_5_19 | 3/9/2019 |
| | Jeff Everett | 503-213-6952 | jeff_everett@fws.gov | https://www.fws.gov/ | 2600 SE 98th Ave., Ste. 100 Portland, OR 97266 | NMFS Comments_Responses Nessecary Data Form from CMZA | 1/30/2020 11/14/2019 |
| US Army Corps of Engineers | Tyler Krug | 541-756-2097 | tyler.j.krug@usace.army.mil | https://www.nwp.usace.army.mil | 2201 N Broadway, Ste. C North Bend, OR 97459 | Southwest Oregon Regional Airport - Runway Safety Area Improvements EA Agency Scoping Meeting | 9/19/2017 |
| | | | | | | OTH Expansion Project, Coos Bay (email w/ New JPA, Corps. No. NWP-2017-337 | 4/9/2020 8/14/2020 |
| | | | | | | OTH 408 Permit Review correspondence | 5/18/2020 |
| | | | | | | NWP-2017-337 - SORA Expansion | 9/21/2017 |
| | | | | | | NWP-2017-337; Water Quality Certification – Neighboring Jurisdiction Determination for a project in Coos Bay and Pony Slough, Coos County, Oregon | 8/5/2020 |
| | | | | | | NWP-2017-337; Water Quality Certification – Neighboring Jurisdiction Determination for a project in Coos Bay and Pony Slough, Coos County, Oregon | 9/11/2020 |
| | | | | | | 20210820 EFH-Corps Response to NMFS Con Rec NWP-2017-337 | 8/20/2021 |
| | | | | | | Joint Permit Application (received by USACE) | 8/5/2020 |
| | | | | | | Nationwide 401 Water Quality Certification Approval; NWP Categories 3, 14, and 27 | 9/11/2020 |

Appendix O-2
Tribal Coordination

From: Sean.Callahan@faa.gov [mailto:Sean.Callahan@faa.gov]

Sent: Wednesday, September 13, 2017 2:18 PM

To: dennis.griffin@oregon.gov; Stacy Scott <sscott@ctclusi.org>; kassandraripee@coquilletribe.org

Cc: Sean.Callahan@faa.gov

Subject: Emailing: North Bend - RSA Improvement Coordination Letter, 2017 09 12 OTH Scoping Handout, Agency Contact List 080917

To all interested parties,

The Federal Aviation Administration would like to initiate consultation with you in accordance with Section 106 of the National Historic Preservation Act of 1966, and implementing regulations 36 CFR Part 800 for the aforementioned project. We are also initiating consultation in accordance with Executive Order 13175, Consultation and Coordination with Indian and Tribal Governments and FAA Executive Order 1210.20, American Indian and Alaska Native Tribal Consultation Policy and Procedures

The Initiation letter, invitation, and meeting materials are attached for your review.

Sean Callahan

Environmental Protection Specialist

F.A.A. – Northwest Mountain Region

Seattle Airports District Office

1601 Lind Ave SW - Suite 250, Renton, WA 98057-3356

425-227-2629

This email and its attachments are confidential under applicable law and are intended for use of the sender's addressee only, unless the sender expressly agrees otherwise, or unless a separate written agreement exists between Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians and a recipient company governing communications between the parties and any data that may be transmitted. Transmission of email over the Internet is not a secure communications medium. If you are requesting or have requested the transmittal of personal data, as defined in applicable privacy laws, by means of email or in an attachment to email, you may wish to select a more secure alternate means of transmittal that better supports your obligations to protect such personal data. If the recipient of this message is not the recipient named above, and/or you have received this email in error, you must take no action based on the information in this email. You are hereby notified that any dissemination, misuse or copying or disclosure of the communication by a recipient who has received this message in error is strictly prohibited. If this message is received in error, please return this email to the sender and immediately highlight any error in transmittal. Thank You

From: [Stacy Scott](#)
To: [Callahan, Sean \(FAA\)](#)
Subject: RE: Emailing: North Bend - RSA Improvement Coordination Letter, 2017 09 12 OTH Scoping Handout, Agency Contact List 080917
Date: Wednesday, October 18, 2017 12:18:37 PM

Sean,

Thank you for reaching out to CTCLUSI in response to improvements at the North Bend Airport. I am glad to see that Oregon SHPO is also involved early on in the scoping process. I am aware of cultural resources present at the North Bend Airport and in addition, the potential for other as yet unlocated cultural resources to be present. CTCLUSI wishes to continue to be involved with this project moving forward and I would appreciate seeing any response letters to the FAA or North Bend Airport from the Oregon SHPO for this project. Also, given the proximity to known cultural resources I would recommend an archaeological survey that would include subsurface testing within the area of potential effect (APE) for the project. If cultural resources are discovered within the APE that cannot be avoided CTCLUSI will need to be consulted with before the project can move forward. Again thank you for contacting us and I look forward to working with you on this project.

Sincerely,

Stacy

Stacy Scott, M.A., RPA
Cultural Resources Protection Specialist/ THPO
Confederated Tribes of
Coos, Lower Umpqua & Siuslaw Indians
1245 Fulton Avenue
Coos Bay, Oregon 97420
541.888.7513 (office)
541.297.5543 (cell)
541.888.2853 (fax)
SScott@ctclusi.org

From: [Callahan, Sean \(FAA\)](#)
To: [Jessie Plueard \(jplueard@cowcreek.com\)](mailto:jplueard@cowcreek.com); [Robert Kentta \(rkentta@ctsi.nsn.us\)](mailto:rkentta@ctsi.nsn.us); sscott@ctclusi.org; THPO@grandronde.org
Cc: [Aaron Killgore](#); [Callahan, Sean \(FAA\)](#)
Subject: Archeological Surveys at North Bend Airport (OTH)
Date: Friday, December 28, 2018 10:41:00 AM

To all interested parties,

The FAA is scheduling archeological surveys at the North Bend Airport (OTH) for Jan 14, 2019. We are sending this email to see if you or other staff want to participate/monitor the surveys in the field.

If interested, please contact me or the consultant listed below at:

Aaron Killgore | Environmental Planner

Mead & Hunt | 9600 NE Cascades Pkwy # 100, | Portland, OR 97220
Mobile: 503-307-3712| Main: 503-548-1494
aaron.killgore@meadhunt.com | meadhunt.com

Sean Callahan
Environmental Protection Specialist
F.A.A. – Northwest Mountain Region
Seattle Airports District Office
2200 S. 216th Street, Des Moines, WA. 98198
206-231-4143

-----**From:**

From: Cheryl Pouley <Cheryl.Pouley@grandronde.org>
Sent: Wednesday, January 23, 2019 3:51 PM
To: Callahan, Sean (FAA) <Sean.Callahan@faa.gov>
Subject: RE: Archeological Surveys at North Bend Airport (OTH)

Dear Sean,
Thank you for the notice regarding the archaeological surveys at the North Bend Airport. We defer further comment on this project to the primacy tribes of the area.
Please let me know if you have any questions.
Thank you,
Cheryl

Cheryl K. Pouley
Archaeologist
Historic Preservation Office
Cultural Resources Department
The Confederated Tribes of the Grand Ronde Community of Oregon
(503) 879-1667

From: [Callahan, Sean \(FAA\)](#)

To: sscott@ctclusi.org; THPO@coquilletribe.org
Subject: North Bend Airport Government to Government Consultation
Date: Wednesday, May 01, 2019 10:14:00 AM
Attachments: [Svy Rpt North Bend RSA Fill Culturall Survey.pdf](#)

This letter is in furtherance of our consultation initiated with the Coquille Indian Tribe and the Confederated Tribes of the Coos, Lower Umpqua, & Siuslaw Indians on December 7, 2018, wherein an Area of Potential Effect (APE) and project description was submitted. A cultural resources assessment was prepared by a Transect Archaeology (Lyle Nakonechny, Ph.D.) for below ground resources and Mead & Hunt, Inc. (Chad Moffett, MA, and Liz Boyer MA) for above-ground resources which the FAA is submitting it to your office.

The proposed APE encompassed 35 acres and included 4 parcels that were discontinuous with no activities occurring between locations. The built environment is only present in the terminal location. The survey team performed an intensive pedestrian survey of the three APE parcels that are anticipated to be impacted by ground disturbing activities. The team utilized transects spaced approximately 3 meters apart to survey all of the unpaved areas within the three survey area parcels.

Transect Archeology found no discrete historic "below ground" archaeological sites or features eligible for inclusion in the National Register. Mead & Hunt identified and documented six resources at least 45 years in age within the APE that were documented on inventory forms, evaluated, and are recommended not eligible for listing in the National Register. Mead & Hunt also evaluated a group of related buildings within and immediately adjacent to the buildings in the APE along with the Airport itself, collectively, for their potential to comprise a historic district. No districts were identified in or immediate to the APE.

Based upon the findings and recommendations in the memorandum, we have determined that our Federal undertaking will have **No Historic Properties Affected** and request your concurrence. Should you have any questions or wish to discuss aspects of the project in further detail, please contact me at (206) 231-4143.

Sean Callahan
Environmental Protection Specialist
F.A.A. – Northwest Mountain Region
Seattle Airports District Office
2200 S. 216th Street, Des Moines, WA. 98198
206-231-4143

From: [Callahan, Sean \(FAA\)](#)
To: ORSHPO.clearance@oregon.gov
Subject: North Bend Project Cultural Survey Submittal
Date: Wednesday, May 01, 2019 10:04:00 AM
Attachments: [Sub Frm North Bend RSA Improvement Project for Survey 41919.pdf](#)
[Cvr Ltr North Bend - RSA and other Improvements - SHPO survey submittal 050119 PDF.pdf](#)
[Svy Rpt North Bend RSA Fill Cultural Survey.pdf](#)

Dear Mr. Griffin:

This letter is in furtherance of our consultation initiated with Oregon State Historic preservation office on December 7, 2018, wherein an Area of Potential Effect (APE) and project description was submitted. A cultural resources assessment was prepared by a Transect Archaeology (Lyle Nakonechny, Ph.D.) for below ground resources and Mead & Hunt, Inc. (Chad Moffett, MA, and Liz Boyer MA) for above-ground resources which the FAA is submitting it to your office.

Sean Callahan
Environmental Protection Specialist
F.A.A. – Northwest Mountain Region
Seattle Airports District Office
2200 S. 216th Street, Des Moines, WA. 98198
206-231-4143

From: [Stacy Scott](#)
To: [Callahan, Sean \(FAA\)](#)
Subject: RE: North Bend Airport Government to Government Consultation
Date: Thursday, May 30, 2019 5:23:23 PM

Dear Mr. Callahan,

RE: North Bend Airport Government to Government Consultation

Thank you for contacting the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians in regards to the proposed work. The Ancestral Territory of the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians extends from the mouth of Tenmile Creek (Lane County) in the north, south to Fivemile Point halfway between the mouths of Whiskey Run Creek and Cut Creek (coinciding with the border between Sections 30 and 31, Township 27 South, Range 14 West, Coos County), thence east to the crest of the Coast Range (to Weatherly Creek on the Umpqua River.) As such, the proposed work is within the Ancestral Territory of the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians (Tribe).

The proposed project area of potential effect falls within a Traditional Cultural Property (TCP) area of the Tribe. The Oregon State Historic Preservation Office has given a state level determination of eligibility for the TCP property and currently the **National Park Service is reviewing the application as a determination of eligibility (DOE)**. There are cultural resources within the area of potential effect for the project and as such the Tribe requests consultation to discuss the project details and address potential concerns for the proposed project.

I look forward to hearing from you and discussing the project and our cultural resource concerns in the near future.

Sincerely,
Stacy

Stacy Scott, MA, RPA
Tribal Historic Preservation Officer &
Cultural Resources Protection Specialist
Confederated Tribes of
Coos, Lower Umpqua & Siuslaw Indians
1245 Fulton Avenue
Coos Bay, Oregon 97420
541.888.7513 (office)
541.297.5543 (cell)
541.888.2853 (fax)
SScott@ctclusi.org

From: Sean.Callahan@faa.gov [mailto:Sean.Callahan@faa.gov]
Sent: Wednesday, May 01, 2019 10:16 AM

error is strictly prohibited. If this message is received in error, please return this email to the sender and immediately highlight any error in transmittal. Thank You

From: [Stacy Scott](#)
To: [Callahan, Sean \(FAA\)](#)
Subject: RE: North Bend Airport Government to Government Consultation
Date: Thursday, June 13, 2019 3:20:33 PM
Attachments: [CTCLUSI TCP 04052019.mpk](#)

Sean,

Please find attached the shape file for the TCP boundary and a link to the redacted copy of the TCP on the SHPO website.

<https://www.oregon.gov/oprd/HCD/NATREG/Pages/Jordan-Cove-TCP.aspx>

Sincerely,
Stacy

Stacy Scott, MA, RPA
Tribal Historic Preservation Officer &
Cultural Resources Protection Specialist
Confederated Tribes of
Coos, Lower Umpqua & Siuslaw Indians
1245 Fulton Avenue
Coos Bay, Oregon 97420
541.888.7513 (office)
541.297.5543 (cell)
541.888.2853 (fax)
SScott@ctclusi.org

From: Stacy Scott <sscott@ctclusi.org>
Sent: Thursday, June 20, 2019 5:26 PM
To: Callahan, Sean (FAA) <Sean.Callahan@faa.gov>
Subject: CONTAINS CONFIDENTIAL INFORMATION NOT SUBJECT TO FOIA- RE: North Bend Airport Government to Government Consultation
Importance: High

Contains Confidential Information/Correspondence NOT subject to FOIA

Sean,

Thank you for taking the time to discuss our concerns and address getting some additional information to assist with making any potential effects determinations for the proposed work. As we previously stated in an email from Courtney Krossman dated December, 28, 2018 the North Bend airport in part falls within the *Q'alya ta Kukwis shichdii me* Traditional Cultural Property that is recognized at the state level as eligible for listing and is currently being reviewed by the National Park Service for eligibility. There is also a village site (Hattsa) noted on the SHPO database that is located as well as historical resources associated with WWII usage (35CS222).

The village of Hattsa was located here due to proximity to abundance of local resources that included but are not limited to fishing, shellfish harvesting, plant and berry gathering and hunting. These culturally significant animal and plant species are still present today although not in the great abundance they once were and NEPA considers those species and the interactions between those species and humans. For example, the health of the bay is of great importance to Tribal members because they are physically, emotionally, and spiritually connected to it and it is part of their identity. Eel grass beds are present around the proposed airport work and they are a significant resource for the health of the bay as they provide critical habitat/nursery for spawning herring, crabs, etc. Additionally, nearly 90 percent of the salt marshes have been lost in the estuary and have resulted in significant decreases in plant and animal populations within the bay. Therefore, considerations should include potential impacts from this proposed undertaking (short term, long term, permanent, temporary) as well as cumulative impacts from the three proposed projects within the same area of the bay (this project, the proposed Army Corp channel modification, and the Jordan Cove LNG project with widening of 4 turning basins).

The last big event occurred in 1700 and areas of the estuary in the vicinity of Ingram Yard (across from the airport) dropped around 8 feet, plunging cedar tree samplings in the anerobic intertidal mud that we can observe today. Given that other previous subsidence events have occurred and our knowledge of the 1700 event and Tribal stories associated with this event it was no surprise to us when during the pipeline geotechnical coring work on the east side of the bay at 30 feet below mud bottom we encountered a shell midden

- Have there been any hydrology studies associated with the proposed filling to increase the runway? Changes in flow can result in increased erosion at adjacent cultural resource sites and/or could increase sedimentation in certain areas that could also have an impact on cultural resources (cultural resources include natural resources).
- What eel grass studies have been conducted? Is there any effects to eel grass beds from the proposed action?
- Are there any proposed future studies after work is completed to determine unforeseen effects to resources/shoreline areas?
- Have there been any fish weir surveys? (need an extreme low tide)
- Where cultural resource surveys conducted to at least the maximum depth of the proposed disturbance?
- Since there is potential midden identified in the runway safety area what work exactly is proposed for that area? Capped and avoided or excavated? It seems there was conservative survey due to potential of the shell being cultural and possibly containing burials with an inadvertent discovery plan.
- What work is planned within the Terminal APE? Capped and avoided or excavated? As was mentioned in the report intact tidal surface at 60cm discovered in this area and there could be fish weirs buried within this stratigraphic layer that were associated with fishing activities from the residents at Hattsa.
- Can we make some recommendations for the Unanticipated Discovery Plan that will be utilized during construction? Is the one that is recommended in the Cultural Resources Survey the one that will be utilized for the work or is there another one we should be reviewing and commenting on? We generally request that one be developed in consultation with CTCLUSI.

Thank you for continuing to work with us to resolve any potential effects and I look forward to reviewing any additional information so we can make any potential effects determinations to not only those SHPO listed archaeological sites but the *Q'alya ta Kukwis shichdii me* Traditional Cultural Property, an area of cultural and religious significance to CTCLUSI.

Sincerely,
Stacy

Stacy Scott, MA, RPA
Tribal Historic Preservation Officer &
Cultural Resources Protection Specialist
Confederated Tribes of
Coos, Lower Umpqua & Siuslaw Indians
1245 Fulton Avenue
Coos Bay, Oregon 97420
541.888.7513 (office)
541.297.5543 (cell)
541.888.2853 (fax)
SScott@ctclusi.org

-----Original Message-----

From: Callahan, Sean (FAA)
Sent: Wednesday, April 29, 2020 7:54 PM
To: Robert Kentta (rkentta@ctsi.nsn.us) <rkentta@ctsi.nsn.us>
Cc: Aaron Killgore (aaron.killgore@meadhunt.com) <aaron.killgore@meadhunt.com>
Subject: Emailing: Svy_Rpt_North Bend RSA Fill Cultural Survey

The Federal Aviation Administration (FAA) would like to initiate consultation with you in accordance with Section 106 of the National Historic Preservation Act of 1966, and implementing regulations 36 CFR Part 800 for the aforementioned project. We are also initiating consultation in accordance with Executive Order 13175, Consultation and Coordination with Indian and Tribal Governments and FAA Executive Order 12110.20, American Indian and Alaska Native Tribal Consultation Policy and Procedures.

A cultural resources assessment was prepared by a Transect Archaeology (Lyle Nakonechny, Ph.D.) for below ground resources and Mead & Hunt, Inc. (Chad Moffett, MA, and Liz Boyer MA) for above-ground resources which the FAA is submitting it to your office.

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Based upon the findings and recommendations in the memorandum, we have determined that our Federal undertaking will have No Historic Properties Affected and request your concurrence. Should you have any questions or wish to discuss aspects of the project in further detail, please contact me at (206) 231-4143.

Sean Callahan
Environmental Protection Specialist

F.A.A. - Northwest Mountain Region
Seattle Airports District Office
2200 S. 216th Street, Des Moines, WA. 98198
206-231-4143

From: Callahan, Sean (FAA) <Sean.Callahan@faa.gov>
Sent: Wednesday, April 29, 2020 7:50 PM
To: Christian Nauer (christian.nauer@ctwsbnr.org) <christian.nauer@ctwsbnr.org>; Robert Brunoe <robert.brunoe@ctwsbnr.org>
Cc: Aaron Killgore <Aaron.Killgore@meadhunt.com>
Subject: Emailing: Svy_Rpt_North Bend RSA Fill Cultural Survey

The Federal Aviation Administration (FAA) would like to initiate consultation with you in accordance with Section 106 of the National Historic Preservation Act of 1966, and implementing regulations 36 CFR Part 800 for the aforementioned project. We are also initiating consultation in accordance with Executive Order 13175, Consultation and Coordination with Indian and Tribal Governments and FAA Executive Order 1210.20, American Indian and Alaska Native Tribal Consultation Policy and Procedures.

A cultural resources assessment was prepared by a Transect Archaeology (Lyle

Nakonechny, Ph.D.) for below ground resources and Mead & Hunt, Inc. (Chad Moffett, MA, and Liz Boyer MA) for above-ground resources which the FAA is submitting it to your office.

The proposed APE encompassed 35 acres and included 4 parcels that were discontinuous with no activities occurring between locations. The built environment is only present in the terminal location. The survey team performed an intensive pedestrian survey of the three APE parcels that are anticipated to be impacted by ground disturbing activities. The team utilized transects spaced approximately 3 meters apart to survey all of the unpaved areas within the three survey area parcels.

Transect Archeology found no discrete historic "below ground" archaeological sites or features eligible for inclusion in the National Register. Mead & Hunt identified and documented six resources at least 45 years in age within the APE that were documented on inventory forms, evaluated, and are recommended not eligible for listing in the National Register. Mead & Hunt also evaluated a group of related buildings within and immediately adjacent to the buildings in the APE along with the Airport itself, collectively, for their potential to comprise a historic district. No districts were identified in or immediate to the APE.

Based upon the findings and recommendations in the memorandum, we have determined that our Federal undertaking will have No Historic Properties Affected and request your concurrence. Should you have any questions or wish to discuss aspects of the project in further detail, please contact me at (206) 231-4143.

Sean Callahan
Environmental Protection Specialist
F.A.A. - Northwest Mountain Region
Seattle Airports District Office
2200 S. 216th Street, Des Moines, WA. 98198
206-231-4143

<Svy_Rpt_North Bend RSA Fill Cultural Survey.pdf>

From: Christian Nauer <christian.nauer@ctwsbnr.org>

Sent: Monday, May 18, 2020 2:12 PM

To: Callahan, Sean (FAA) <Sean.Callahan@faa.gov>

Cc: Robert Brunoe <robert.brunoe@ctwsbnr.org>

Subject: Re: Emailing: Svy_Rpt_North Bend RSA Fill Cultural Survey

Hi Sean,

Thank you very much for the opportunity to provide comment on the North Bend RSA Fill Cultural Survey.

General Comment:

As the technical reviewer for NHPA Section 106 and other cultural resource issues for the

Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO), the CTWSRO Tribal Historic Preservation Office (THPO) has concerns with the potential effects to historic properties or cultural resources within the Project Area of Potential Effects (APE). The Project APE is within the areas of concern for the CTWSRO. Project-specific Comment(s):

This office considers the report to represent a reasonable and good faith effort to identify, evaluate, and protect historic properties and cultural resources within the Project APE, and concurs with the findings and recommendations within. In order to protect cultural resources that may not have been identified, this office recommends that an explicit Inadvertent Discovery Plan (IDP) for human remains, items of cultural patrimony, and intact archaeological deposits is in place in advance of Project implementation; construction crews should be trained/briefed on the contents and importance of the IDP.

Thank you for your efforts to protect cultural resources.

Best Regards, and Stay Safe,

Christian

Christian Nauer, MS
Archaeologist
Confederated Tribes of the Warm Springs Reservation of Oregon
Branch of Natural Resources

christian.nauer@ctwsbnr.org
Office 541.553.2026
Cell 541.420.2758

Standard Disclaimers:

*The Confederated Tribes of the Warm Springs Reservation of Oregon have reserved treaty rights in Ceded Lands, as well as Usual and Accustomed and Aboriginal Areas, as set forth through the Treaty with the Middle Tribes of Oregon, June 25, 1855.

*Please know that review by the Tribal Historic Preservation Office does not constitute Government-to-Government consultation. Please ensure that appropriate Government-to-Government consultation is made with the Confederated Tribes of the Warm Springs Tribal Council.

*The opinions expressed by this author do not necessarily represent those of the Confederated Tribes of the Warm Springs Reservation of Oregon. Information, contents, and attachments in this email are Private and Confidential.

From: Callahan, Sean (FAA)
To: JAMES Shane * OPRD; KassandraRippe@coquilletribe.org; Christian Nauer (christian.nauer@ctwsbnr.org); Robert Brunoe; Robert Kentta (rkentta@ctsi.nsn.us)
Subject: North Bend Airport RSA EA - Draft Final IDP 061620
Date: Tuesday, June 16, 2020 8:20:00 AM
Attachments: OTH RSA EA - Draft Final IDP 061620.docx
Hello everyone,

I have attached a draft IDP for your review. This relates to the EA that I am working on for the Runway Safety Area project at the North Bend airport. This is a little different from the IDP that was

included in the original survey report. I left it in the word format so it will be easier to add comments or track changes. I am available if you need to reach out to me as well.

Sean Callahan
Environmental Protection Specialist
F.A.A. – Northwest Mountain Region
Seattle Airports District Office
2200 S. 216th Street, Des Moines, WA. 98198
206-231-4143

From: Callahan, Sean (FAA)
To: JAMES Shane * OPRD; KassandraRippe@coquilletribe.org; Christian Nauer (christian.nauer@ctwsbnr.org); Robert Brunoe; Robert Kentta (rkentta@ctsi.nsn.us)
Subject: North Bend Airport RSA EA - Draft Final IDP 061620
Date: Tuesday, June 16, 2020 8:20:00 AM
Attachments: [OTH RSA EA - Draft Final IDP 061620.docx](#)

Hello everyone,

I have attached a draft IDP for your review. This relates to the EA that I am workign on for the Runway Safety Area project at the North Bend airport. This is a little different from the IDP that was included in the original survey report. I left it in the word format so it will be easier to add comments or track changes. I am available if you need to reach out to me as well.

Sean Callahan
Environmental Protection Specialist
F.A.A. – Northwest Mountain Region
Seattle Airports District Office
2200 S. 216th Street, Des Moines, WA. 98198
206-231-4143

Appendix P
Inadvertent Discovery Plan

Section B
Archaeological Resources

8. Inadvertent Discovery Plan for Cultural Resources and Human Remains

Inadvertent Discovery Plan for Cultural Resources and Human Remains
Southwest Oregon Regional Airport
City of North Bend, Coos County, Oregon

Introduction

The proposed project will include excavation into landforms that have the potential to contain a cultural resource. A cultural resource discovery could be prehistoric or historic artifacts. It is possible that buried human remains could be unexpectedly encountered. Archaeologists have examined and tested areas of anticipated ground disturbance; however, it is possible that unanticipated discoveries of prehistoric and historic artifacts or human remains will be made during excavation. This plan has been developed to establish the procedures to follow if prehistoric and historic artifacts or human remains are inadvertently discovered during proposed project activities.

Prehistoric and historic artifacts in the region usually consist of concentrations of clam shell and charcoal, flakes (chips) of stone, stone/bone/wood tools, concentrations of cobbles and charcoal, and concentrations of bone. Prehistoric artifacts have not been identified in areas of anticipated ground disturbance, but there is the possibility of unanticipated discovery. Testing did not occur under the Airport “hardscape” surfaces (runways, roads, buildings).

Historic artifacts at the Airport usually consist of buried ammunition, glass and bottles, dishes, old cans, rusted metal, and dark-rich soil, or burned soil. It is possible that the archaeology survey failed to identify an isolated buried historic artifact concentration, e.g., the location of a small buried ammunitions storage feature. There is a general scatter of WWII era debris in the fill of the Airport runway. A single brass shell casing, or a single soda bottle are expected to be exposed by the project. The common dispersed WWII debris elements do not require special protections. A discrete concentration of ammunition or debris, an old foundation, a buried WWII airplane, etc., are the types of historic features that would require monitoring and documentation from an archaeologist, and/or a Tribal monitor.

Procedures

The following procedures are to be followed if an inadvertent discovery is made during the proposed project activities.

Step 1: Stop work

- Prehistoric artifacts and historic artifact concentrations - If anyone discovers suspected prehistoric artifacts or a concentration of historic artifacts during proposed project activities, all work adjacent to the discovery must stop. A buffer of 60 meters from the artifact location should be established and marked to prevent further damage. The location of the discovery should be secured to ensure no further impacts occur until the remaining steps in this plan are completed. If a tribal monitor is on-site, he/she should be notified immediately. The FAA will ask the Port’s contractor

**Section B
Archaeological Resources**

either to Assist in securing access to the location of the discovery and take appropriate measures to protect the location of the discovery from rain, stormwater, and other possible disturbances, or Assist the archaeologist in moving the artifacts to a protected and secure area of the site away from the immediate construction area if relocation of the artifacts is appropriate or necessary.

- The contractor will immediately notify the FAA as well as the airport's designated representative and a professional archaeologist who will conduct an inspection of the discovery location as soon as possible to confirm and/or make a preliminary assessment of the discovery. Once the tribal monitor/archaeologist completes this inspection, the results will be shared with the FAA and the airport's representative to determine next steps. Artifacts will not be collected. In general, artifacts or deposits indicative of casual loss or discard will be considered and recorded as isolated finds. Artifacts or deposits that reflect or appear to reflect patterned behavior and are or appear to be in situ, as well as any archaeological features, will be considered potentially significant and will require further consultation with the FAA and the SHPO. Should the consultation determine that a significant cultural resource has been encountered, the FAA will then promptly notify the SHPO and the appropriate Tribes the initial findings of the tribal monitor/examining archaeologist. The tribal monitor /archaeologist will work with the FAA, the airport's representative and the airport's contractor to determine when and where work can continue.
- Archaeological excavations may be required. This is handled on a case-by-case basis by the tribal monitor/professional archaeologist and project manager, in consultation with the FAA, the SHPO, the airport, and the appropriate tribes. If it is necessary for the tribal monitor/archaeologist to enter any excavations to examine a find or possible find and those excavations are deeper than four feet below the surface, the airport's contractor will provide appropriate shoring or implement other measures to ensure compliance with all applicable state and federal safety requirements. The tribal monitor/archaeologist will not enter any excavations until these requirements are met.
- Human remains - If suspected human remains are discovered during proposed project activities, all work adjacent to the discovery must stop. A buffer of 60 meters from the location of the remains should be established and marked to prevent further disruption of the site. If a tribal monitor is on-site, he/she should be notified immediately. Only essential personnel should be informed of the discovery and no media should be alerted as the location of ancestral remains and archaeological sites are protected under state and federal law. There should be no photos taken, especially if they are ancestral remains, out of respect to the Tribes. If the discovery is suspected to be ancestral, the remains should not be removed without direct involvement from and in consultation with interested Tribes. Human remains must be treated respectfully at all times. The location of the discovery should be secured to ensure no further impacts occur until law enforcement (sheriff/coroner) can secure the area and the remaining steps in this plan are completed. The contractor will immediately notify the airport's designated representative and a professional archaeologist who will conduct an inspection of the discovery location as soon as

Section B
Archaeological Resources

possible to confirm and/ or make a preliminary assessment of the discovery. The Airport's designated representative and tribal monitor will immediately notify the FAA who will then contact the SHPO, the Tribes, and the Oregon State Commission on Indian Services.

- If the site is determined not to be a crime scene, and the human remains are identified as Native American, the FAA Airport representative, and the onsite tribal monitor shall continue to secure the remains and any associated funerary objects in place, until their final disposition on-site in a predetermined location. The FAA shall give due consideration to and honor, to the extent possible, any request by the Tribe(s) to leave the remains and/or other cultural items in place. Construction and other ground-disturbing activity may not resume in the discovery vicinity until authorized by the appropriate federal and state agencies and the Tribes. The examining archaeologist/tribal monitor will work with the FAA as well as the airport representative, and tribal monitor to determine when and where work can continue away from the discovery vicinity.

Step 2: Notification (see *List of Contacts* below)

- Prehistoric artifacts and historic artifact concentrations – if discovered notify:
 - Oregon State Historic Preservation Office (OR SHPO)
 - Coquille Tribe THPO
 - Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians THPO
 - Confederated Tribes of Siletz Indians of Oregon
 - Mitch Sparks, Legislative Commission on Indian Services

- Human remains – if discovered notify:
 - Oregon State Police and wait on-site for law enforcement to secure the site of the suspected discovery
 - Kassie Rippee, Coquille Tribe THPO
 - Stacy Scott, Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians THPO
 - Confederated Tribes of Siletz Indians of Oregon
 - Mitch Sparks, Legislative Commission on Indian Services
 - OR SHPO

Step 3: Documentation and evaluation

- Prehistoric artifacts and historic artifact concentrations - Need to be documented and a preliminary evaluation of National Register eligibility completed by a professional archaeologist. If the discovery is recommended to be historically significant, then steps to avoid or mitigate adverse effects must also be developed under Section 106 (per 36 CFR 800). Interested Tribes should participate in identification of historic artifacts and should be given the opportunity to examine artifacts recovered from the site. The FAA as the lead federal agency conduct documentation and evaluation of the finds and then determine the avoidance and mitigation plans

**Section B
Archaeological Resources**

after the appropriate coordination. This information will be forwarded to the Oregon SHPO and the appropriate tribes as part of the consultation process.

- Human remains - The coroner (with assistance of law enforcement personnel) will determine if the remains are human, whether the discovery site constitutes a crime scene, and will notify OR SHPO. If the remains are determined to be ancestral, and not part of a crime scene, the remains should be left in place. Documentation and determination of what happens to the remains should be determined in consultation with area Tribes.

Step 4: Consultation

- Prehistoric artifacts and historic artifact concentrations - The documentation and evaluation of the historical significance of prehistoric and historic artifacts and steps to avoid or mitigate adverse effects must be provided to the OR SHPO, Coquille Tribe THPO, the Tribes of the Coos, Lower Umpqua, and Siuslaw Indians THPO, and the Confederated Tribes of Siletz Indians of Oregon for review and concurrence. Section 106 requires that the documentation standards and post-review discovery process set forth in 36 CFR 800.11 and 36 CFR 800.13 be followed prior to resuming further ground disturbance activities in the discovery area.
- Human remains - Documentation of human skeletal remains and funerary objects will be agreed upon through the consultation process with the OR SHPO, the Coquille Tribe, the Confederated Tribes of Siletz Indians of Oregon, and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians. If the remains cannot be relocated to an appropriate location, they will remain in the location where they were found, and the project will avoid further disruption to the site. No construction activities within the discovery area will resume until consultation and documentation has been completed.

Construction may continue at the discovery location only after the process outlined in this plan is followed and the FAA has determined that compliance with state and federal laws is complete.

List of Contacts:

Oregon Heritage: State Historic Preservation Office

Main Number: 503-986-0690

Dennis Griffin, PhD, RPA

State Archaeologist

503-986-0674

dennis.griffin@oregon.gov

John Pouley

Assistant State Archaeologist

503-986-0675

john.pouley@oregon.gov

Section B
Archaeological Resources

Legislative Commission on Indian Services

Mitch Sparks, Executive Director

LCIS@oregonlegislature.gov

503-986-1067

Coquille Indian Tribe

Kassandra Rippee

541-808-5554

kassandraripee@coquilletribe.org

Confederated Tribes of the Siletz Indians of Oregon

Tina Retasket, Assistant/Acting GM

541-444-2532

tinar@ctsi.nsn.us

Confederated Tribes of the Coos, Lower Umpqua & Siuslaw Indians

Stacy Scott, Tribal Historic Preservation Officer

541-888-7513 (office)

541-297-5543 (cell)

sscott@ctclusi.org

Oregon State Police

Southern Command Center: 800-442-2068

Oregon State Police

General Headquarters

3565 Trelstad Avenue SE,

Salem, OR 97317

ask.osp@osp.oregon.gov

OSFM: oregon.sfm@osp.oregon.gov

Phone: 503-378-3720

Fax: 503-378-8282

Hours: 8:00 AM-5:00 PM

Oregon State Medical Examiner

13309 SE 84th Avenue

Suite 100

Clackamas, OR 97015

Phone: 971-673-8200

Medical.Examiner@osp.oregon.gov

Hours 8:00 AM - 5:00 PM, Monday - Friday

Appendix Q
SHPO Concurrence Letter



Oregon
Kate Brown, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE Ste C
Salem, OR 97301-1266
Phone (503) 986-0690
Fax (503) 986-0793
www.oregonheritage.org



May 23, 2019

Mr. Sean Callahan
FAA - NW Mountain Region
Seattle Airports Dist Off
1601 Lind Ave SW, Ste 250
Renton, WA 98057-3356

RE: SHPO Case No. 17-1582

FAA, Southwest Oregon Regional Airport, Runway 4-22 Safety Area Project
Correct deficiencies
1100 Airport Lane, North Bend, Coos County

Dear Mr. Callahan:

We have reviewed the materials submitted on the project referenced above, and we concur with the following determinations of eligibility:

- Southwest Oregon Regional Airport: not eligible as a historic district. Please note that the World War II-era buildings located outside of the Area of Potential Effect (APE) may need to be evaluated individually if future projects could have effects.
- REACH Air Ambulance: not individually eligible.
- Aircraft Rescue & Fire Fighting Building: not individually eligible.
- FedEx Building: not individually eligible due.
- Seat Case Building: not individually eligible.
- Electrical Shed: not individually eligible.
- Old Terminal, Coos Aviation Building: not individually eligible.

We also concur that the proposed undertaking will result in no historic properties affected. This letter refers to above-ground historic resources only. Comments pursuant to a review for archaeological resources will be sent separately.

Unless project actions change, this concludes the requirement for consultation with our office under Section 106 of the National Historic Preservation Act (per 36 CFR Part 800) for above-ground historic properties. Local regulations, if any, still apply and review under local ordinances may be required. Please feel free to contact me if you have any questions, comments, or need additional assistance.

Sincerely,

Tracy Schwartz
Historic Preservation Specialist
(503) 986-0677
tracy.schwartz@oregon.gov

Appendix R
Oregon DSL Submerged Lands Preliminary
Ownership Report



Preliminary Ownership Summary

www.oregon.gov/dsl/

REQUEST INFORMATION

Staff Name: Jacob Taylor and Amber McKernan

Preferred contact method(s): Phone Email

Phone: 503-986-5303

Email Address: jacob.taylor@dsl.state.or.us, amber.mckernan@dsl.state.or.us

Site Location:

County: SW Oregon Regional Airport

Map and Tax Lot (if applicable):

Latitude/Longitude: 43.423749, -124.240247

Waterway (if applicable): Coos Bay

Township, Range and Section(s): 25S13W09 and
25S13W10

LAS App Number (if applicable):

Land Parcel Number (if applicable):

Description and reason for request: The Southwest Oregon Regional Airport will be applying to fill approximately 3,150 square feet at the northeast corner of the runway for safety improvements. The Department needs to know if the fill is occurring on State-owned waterway. Jacob Taylor had a request in July 2020 that there is additionally a mitigation site for which ownership needs to be determined.

Questions may also be directed to the DSL Ownership Specialist at 541-388-6290

STAFF FOLLOW-UP

Staff Name: Erin Serra

Initial date and method of contact with requestor: 10/4/2019, July 2020

Date and method of notifying requestor and/or staff of initial findings: 10/4/19, 9/22/20

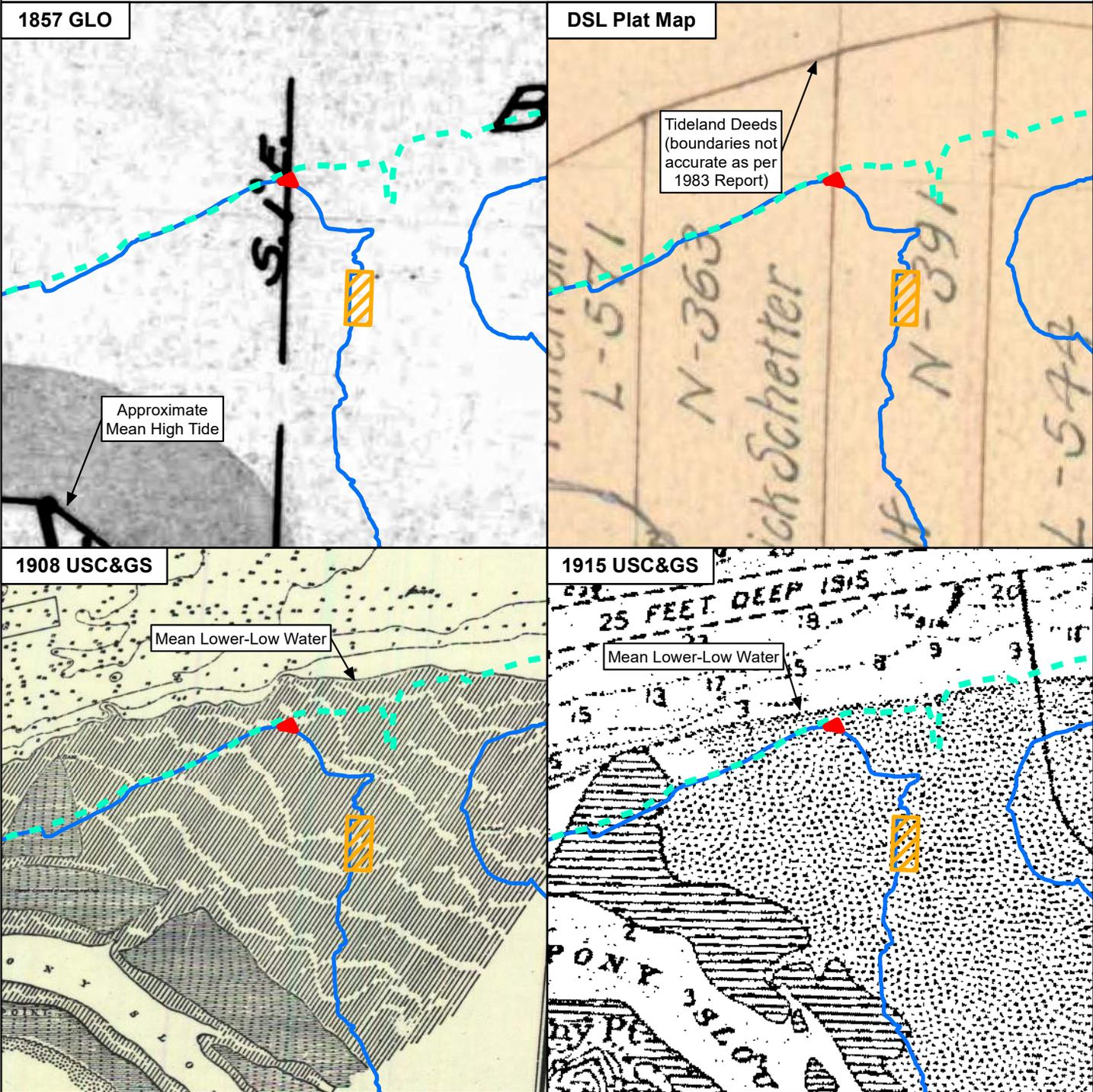
Is further ownership follow-up required? Yes No Area added to Ownership Studies GIS? Yes No

Preliminary findings: 10/8/19 The proposed fill location is on state conveyed tideland corresponding to deeds N-363 and N-391.

Exhibit A shows the 1857 GLO map, DSL plat map, 1908 US Coast & Geodetic Survey (USC&GS) chart and 1915 USC&GS chart. Exhibits B and C show deeds N-363 and N-391, respectively. Exhibit D shows the 1939 and 1944 aerial photographs, 1983 ownership study and 2018 aerial photograph. There is conflict between the aerial photos and the 1983 ownership study. As per review by Nancy Pustis, the 1983 Department ownership line will be used in this area.

Based on the 1983 ownership line, this review concludes that the proposed fill location and mitigation site are on state conveyed tideland.

These preliminary findings may change based on additional information and do not represent a Department decision on ownership.



Attachment A: Early Surveys and Charts

- Proposed Fill Location
- Proposed Mitigation Site
- 1983 Ownership Line
- 2015 Approximate Mean High Water Line

Notes: The 1908 and 1915 mean lower low water are below State ownership. State ownership is approximately 1.1 feet higher at mean low water (DSL 1989). Research from the filled lands project shows that this area was impacted by an avulsion in 1912. The proposed fill location is on tideland deeded by the State in deeds N-363 and N-391.

This product is for informational purposes and may not have been prepared for, or be suitable for, legal, engineering or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

0 500 1,000

Feet



Map Projection: Oregon Statewide Lambert, NAD83, International Feet

State of Oregon
 Department of State Lands
 1645 NE Forbes Rd. Ste 112
 Bend, OR 97701
 541-388-6112
 www.oregon.gov/DSL
 Date: 9/22/2020



TIDE

STATE OF OREGON.

In consideration of

Two Hundred and Thirty Four Dollars.
paid to the Board of Commissioners for the sale of School, University and other
State Lands, the State of Oregon does hereby grant, bargain, sell and convey
unto Frederick Schetter

his heirs and assigns, the following described Tide lands,
situate in Clatsop County, Oregon, to-wit:

All the Tide lands lying north of and fronting
and abutting on Lots 1 and 2 of Section 9 Township
20 N. Range 12 E. of the Will. Mer. Containing
117 acres more or less.

To Have and to Hold the said premises, with their appurtenances,
unto the said Frederick Schetter

his heirs and assigns forever.

Witness the seal of the State affixed this
20th day of November 1884

J. F. Moody Governor.

R. P. Carhart Secretary.

Edward Kissel Treasurer.

[L. S.]

TDE
STATE OF OREGON.

In consideration of

Three Hundred and Twenty Seven and ⁰⁰/₁₀₀ Dollars,
paid to the Board of Commissioners for the sale of School, University and other
State Lands, the State of Oregon does hereby grant, bargain, sell and convey
unto William B. Metcalf

his heirs and assigns, the following described Five lands,
situate in Levas County, Oregon, to-wit:

All the Five lands lying north of and fronting and
abutting on Lot 5 of Section 10 and Lot 10 of Section
15 Township 25 South Range 13 West of the Will-
mer. Containing 163 ⁷⁴/₁₀₀ acres.

To Have and to Hold the said premises, with their appurtenances,
unto the said William B. Metcalf

his heirs and assigns forever.

Witness the seal of the State affixed this

8th day of January 1885

J. J. Woolley Governor.

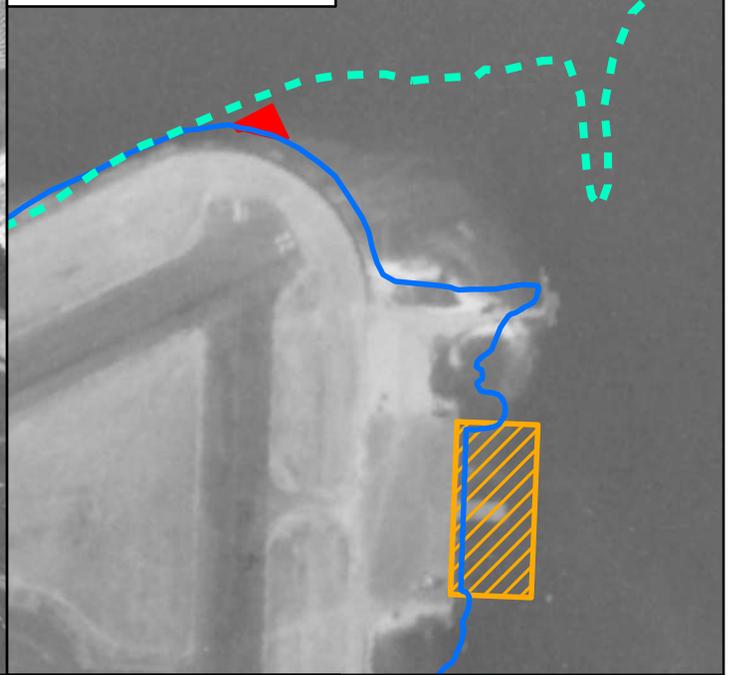
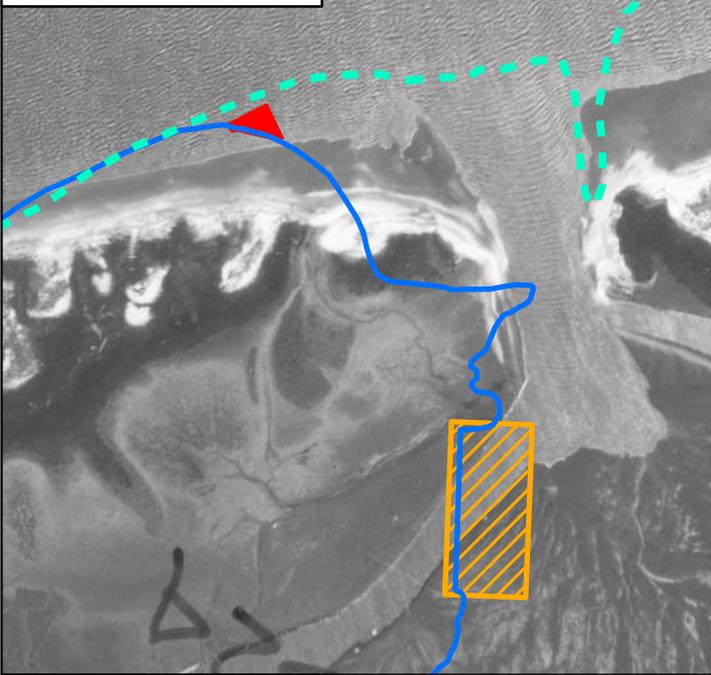
R. P. Fairbank Secretary.

Edward Stinch Treasurer.

[L. S.]

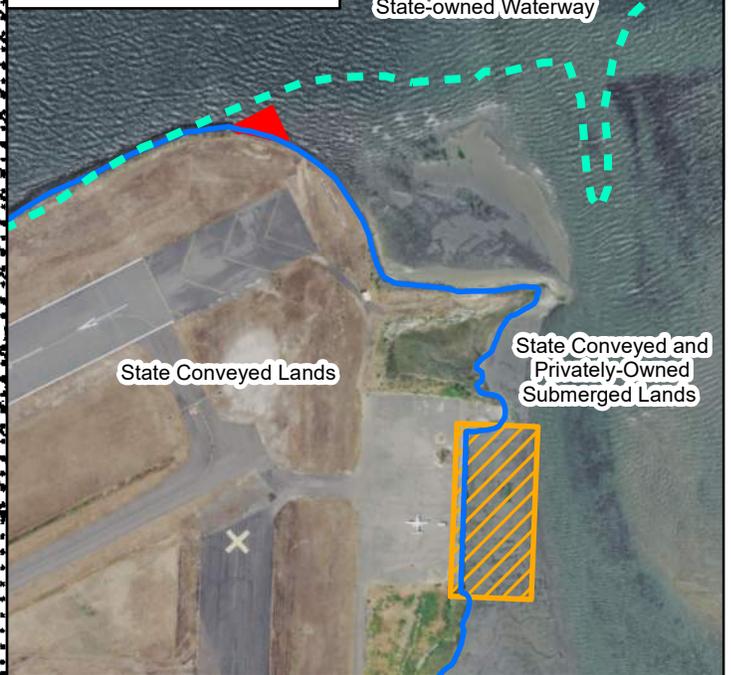
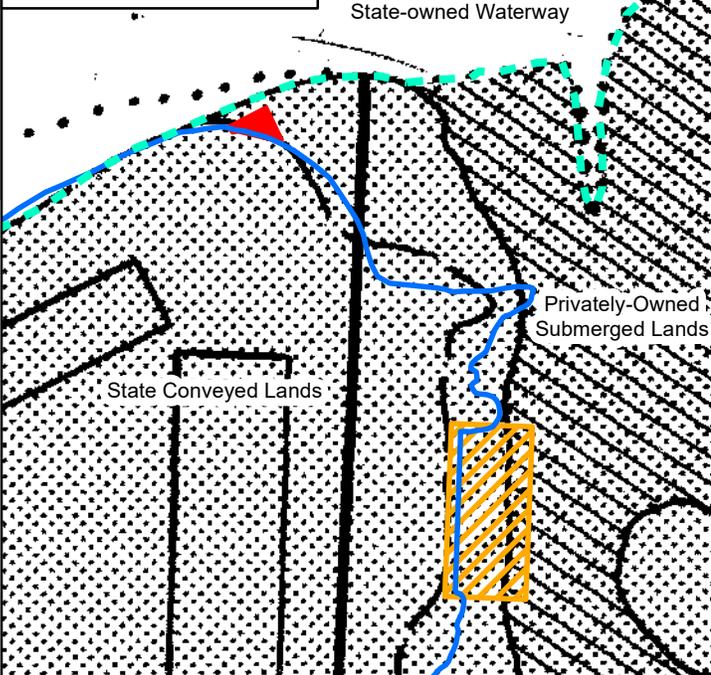
1939 Aerial Photograph

1944 Aerial Photograph



1983 Ownership Study

2018 Aerial Photograph

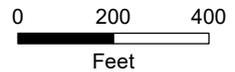


Attachment B. Aerial Photographs and 1983 Ownership Study

-  Proposed Fill Location
-  Proposed Mitigation Site
-  1983 Ownership Line
-  2015 Approximate Mean High Water Line

Notes: The 1983 ownership study identifies the proposed fill location as being on state conveyed lands, which are also above the pre-avulsion 1908 MLLW and 1928 MLLW lines. The filled lands study identified the existing airport as historic fill, as well as mapped the approximate current mean high water line. The proposed fill would occur on state conveyed lands and is estimated at 3,150 square feet.

This product is for informational purposes and may not have been prepared for, or be suitable for, legal, engineering or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.



Map Projection: Oregon Statewide Lambert, NAD83, International Feet

State of Oregon
Department of State Lands
1645 NE Forbes Rd. Ste 112
Bend, OR 97701
541-388-6112
www.oregon.gov/DSL
Date: 9/22/2020



Appendix S
Wetland Delineation Report

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

Appendix S

Fully completed and signed report cover forms and applicable fees are required before report review timelines are initiated by the Department of State Lands. Make checks payable to the Oregon Department of State Lands. To pay fees by credit card, go online at <https://apps.oregon.gov/DSL/EPS/program?key=4>.

Attach this completed and signed form to the front of an unbound report or include a hard copy with a digital version (single PDF file of the report cover form and report, minimum 300 dpi resolution) and submit to: **Oregon Department of State Lands, 775 Summer Street NE, Salem, OR 97301-1279**. A single PDF of the completed cover form and report may be e-mailed to **Wetland_Delineation@dsl.state.or.us**. For submittal of PDF files larger than 10 MB, e-mail DSL instructions on how to access the file from your ftp or other file sharing website.

| Contact and Authorization Information | | | | | | | | | | | | | | |
|---|--|--|----------|-------|---------|----|-----|-----|----|--|-----|-----|----|--|
| <input checked="" type="checkbox"/> Applicant <input type="checkbox"/> Owner Name, Firm and Address: Bob Hood 11000 Airport Lane North Bend, OR 97459 | Business phone # 541-756-8531 x 105 Mobile phone # (optional) E-mail: bob@flyoth.com | | | | | | | | | | | | | |
| <input type="checkbox"/> Authorized Legal Agent, Name and Address: N/A | Business phone # Mobile phone # E-mail: | | | | | | | | | | | | | |
| I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact. Typed/Printed Name: <u>Bob Hood</u> Signature: _____ Date: _____ Special instructions regarding site access: <u>Please call ahead before accessing site.</u> | | | | | | | | | | | | | | |
| Project and Site Information | | | | | | | | | | | | | | |
| Project Name: SW Oregon Regional Airport Improvement Project | Start: Latitude: 43.413635 End: Latitude: 43.422866 | Longitude: -124.263763 deg. Longitude: -124.240316 deg | | | | | | | | | | | | |
| Proposed Use: Improvements to existing airport | Tax Map # 25s13w08 Tax Lot(s) 100 (partial), Tax Map # 25s13w09 Tax Lot(s) 100 (partial) 3114Z(partial), 101Z(partial),115Z1 (partial),114Z1 (partial). | | | | | | | | | | | | | |
| Project Street Address (or other descriptive location): 11000 Airport Lane, North Bend, OR | <table style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: left;">Township</td> <td style="text-align: left;">Range</td> <td style="text-align: left;">Section</td> <td style="text-align: left;">QQ</td> </tr> <tr> <td>25S</td> <td>13W</td> <td>09</td> <td></td> </tr> <tr> <td>25S</td> <td>13W</td> <td>08</td> <td></td> </tr> </table> | | Township | Range | Section | QQ | 25S | 13W | 09 | | 25S | 13W | 08 | |
| Township | Range | Section | QQ | | | | | | | | | | | |
| 25S | 13W | 09 | | | | | | | | | | | | |
| 25S | 13W | 08 | | | | | | | | | | | | |
| City: North Bend County: Coos | Waterway: Coos bay River Mile: N/A | | | | | | | | | | | | | |
| Wetland Delineation Information | | | | | | | | | | | | | | |
| Wetland Consultant Name, Firm and Address: PBS Engineering and Environmental, Attn: Brian Bieger 415 W 6 th Street, Suite 601, Vancouver, WA 98660 | | Phone # 360-567-2103 Mobile phone # 503-828-8566 E-mail: brian.bieger@pbsusa.com | | | | | | | | | | | | |
| The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge. | | Date: 02/15/19 | | | | | | | | | | | | |
| Consultant Signature: | | | | | | | | | | | | | | |
| Primary Contact for report review and site access is <input type="checkbox"/> Consultant <input checked="" type="checkbox"/> Applicant/Owner <input type="checkbox"/> Authorized Agent | | | | | | | | | | | | | | |
| Wetland/Waters Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Study Area size: approx. 63 ac. Total Wetland Acreage: .20 waters | | | | | | | | | | | | | | |
| Check Applicable Boxes Below | | | | | | | | | | | | | | |
| <input type="checkbox"/> R-F permit application submitted | <input checked="" type="checkbox"/> Fee payment submitted \$ <u>437</u> | | | | | | | | | | | | | |
| <input type="checkbox"/> Mitigation bank site | <input type="checkbox"/> Fee (\$100) for resubmittal of rejected report | | | | | | | | | | | | | |
| <input type="checkbox"/> Industrial Land Certification Program Site | <input type="checkbox"/> Request for Reissuance. See eligibility criteria. (no fee) | | | | | | | | | | | | | |
| <input type="checkbox"/> Wetland restoration/enhancement project (not mitigation) | DSL# _____ Expiration date _____ | | | | | | | | | | | | | |
| <input type="checkbox"/> Previous delineation/application on parcel If known, previous DSL # | <input type="checkbox"/> LWI shows wetlands or waters on parcel Wetland ID code | | | | | | | | | | | | | |
| For Office Use Only | | | | | | | | | | | | | | |
| DSL Reviewer: _____ Fee Paid Date: _____ / _____ / _____ | | DSL WD # _____ | | | | | | | | | | | | |
| Date Delineation Received: ____ / ____ / ____ Scanned: <input type="checkbox"/> Electronic: <input type="checkbox"/> | | DSL App. # _____ | | | | | | | | | | | | |

Wetland Delineation Report

SW Oregon Regional Airport Safety Area Improvements
North Bend, Oregon

Prepared for:
Mead and Hunt, Inc.
9600 NE Cascade Parkway, Suite 100
Portland, Oregon 97220

February 15, 2019
PBS Project 90368.000



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INTRODUCTION

PBS Engineering and Environmental Inc. (PBS) was contracted by Mead and Hunt Inc. (Client) to conduct a wetland and waters of the US/Oregon delineation for the SW Oregon Regional Airport Safety Area Improvements Project (Project). The Project involves a variety of improvements to existing airport facilities including the construction of new facility buildings, taxiways, and enlargement of the Runway Safety Area (RSA) found at the east end of the main east/west runway. While most of the proposed improvements are located in currently developed areas, the RSA improvements will likely involve fill within the tidal waters of Coos Bay.

The project area comprises five separate study areas (Study Areas A–E, approximately 63 acres total) The study areas are located in portions of the following tax lots: within the NW ¼ of Section 08, T25S, R13W is tax lot 100 and within NE ¼ of Section 0, T25S, R13W are tax lots 100, 3114Z, 101Z, 115Z1, 114Z1 (Appendix A, Figures 2A and 2B).

PBS' fieldwork and reporting was conducted on November 15, 2018, by Brian Bieger, Senior Scientist/Project Manager.

LANDSCAPE SETTING AND LAND USE

North Bend is located within the Coastal Lowlands Ecoregion which contains beaches, dunes, and marine terraces below 400 feet elevation. This area is characterized by wet forests, lakes, estuarine marshes, and tannic colored streams. Precipitation is generally very high.

The study areas are a combination of routinely maintained lawn areas within the airport infield, airport infrastructure and buildings, shoreline armored with large riprap and recycled concrete slabs, and the open waters of Coos Bay. Land use within the project area is limited to private and commercial airport services and attendant infrastructure including paved runways, ground lighting, and aircraft tracking devices. Surrounding land uses include commercial and high-density residential developments.

SITE ALTERATIONS

A large amount of disturbance was required to construct the present day airport. As indicted in the soils maps for the study areas, the airport was built on imported fill material. Historical construction within the study areas likely included grading, importation of fill materials, installation of drainage infrastructure, armoring of banks, and paving of runways and access roads. To our knowledge, no significant alterations have occurred within recent history that would affect the presence or absence of wetlands has been completed in recent times.

PRECIPITATION DATA AND ANALYSIS

Precipitation data were obtained from the National Oceanic and Atmospheric Administration (NOAA)/National Weather Service (NWS) North Bend Southwest Oregon Regional Airport station (NWS, 2018) and the Natural Resource Conservation Service (NRCS) WETS station for the North Bend Southwest Oregon Regional Airport (NRCS, 2018).

As indicated in Table 1A, below normal precipitation occurred in the two weeks before the November 15, 2018, field study date. Cumulative precipitation for the water year starting October 1, 2018, was also below normal. Cumulative precipitation was determined to be drier than normal for the three-month period leading up to the field study date (Table 1B). It was determined that precipitation prior to the field visit would not likely affect wetland hydrology indicators as the wetlands in question are saturated/inundated primarily through fluctuations in tide heights, not direct precipitation.

Table 1A. Precipitation To-Date Data

| Field Study Date | Observed Precipitation on the Date of the Field Study (in.) | Observed Precipitation Two Weeks Prior to the Field Study Date | Percentage of Normal Precipitation for the Water Year to Date |
|-------------------|---|--|---|
| November 15, 2018 | 0.00 | 0.65 in. (15% of normal 1981–2010 data) | 35% |

Table 1B. Precipitation Data for the Preceding 3 Months

| Prior Month | WETS Rainfall Percentile (in.) | | Measured Rainfall (in.) | Condition: Dry, Wet, Normal | Condition Value: (1=dry, 2=normal, or 3=wet) | Month weight | Multiply previous two columns |
|--|--------------------------------|------|-------------------------|-----------------------------|---|--------------|-------------------------------|
| | 30th | 70th | | | | | |
| August | 0.20 | 0.69 | 0.10 | Dry | 1 | 3 | 3 |
| September | 0.42 | 1.84 | 0.50 | Normal | 2 | 2 | 4 |
| October | 2.59 | 5.77 | 2.49 | Dry | 1 | 1 | 1 |
| Sum | | | | | | | 8 |
| Rainfall of prior period was: drier than normal (sum is 6–9), normal (sum is 10–14), wetter than normal (sum is 15–18). | | | | | | | Drier |

WETS Station: North Bend Southwest Oregon Regional Airport, OR, 1981–2010

Measured Rainfall: OTH, North Bend, OR August 2018–October 2018

Data From: <http://agacis.rcc-acis.org/?fips=41011>

METHODS

The field study occurred on November 15, 2018. The method used for determining the presence or absence of wetlands and waters followed the routine approach of the US Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (USACE, 2008).

It was determined that the potential for the presence of wetlands within Study Area B was high based on prior review of National Wetlands Inventory (NWI) maps (Appendix B, Figure 3), soil maps (Appendix B, Figure 4), and aerial photographs. The highest probability for wetlands was in the southwest portion of Study Area B that is in a small cove that is subject to tidal inundation and is not armored with large rock.

All of the study areas were traversed on foot as vegetation and topography were noted. Soils, vegetation, and indicators of hydrology were recorded at sample plot locations on standard wetland determination data forms in all locations where wetlands may be present (Appendix C). All of the study areas except Study Areas A and B are either currently developed or exist as sandy soils dominated by upland plant species with no observed wetland indicators.

Wetland plant ratings were assigned based on the *2016 National Wetland Plant List* (Lichvar et al., 2016). Plot locations were chosen to represent contrasts in landscape positions and vegetation communities. No modification of the standard wetland boundary determination methodology (i.e., presence of hydric soil indicators, hydrophytic plant dominance, and wetland hydrology indicators) was necessary during the delineation.

DESCRIPTION OF ALL WETLANDS AND OTHER NON-WETLAND WATERS

A single emergent tidal wetland was identified and delineated within the southeast portion of Study Area B. The wetland is located within a sloping alcove in the southeast portion of the project area (Appendix B, Figure 6B). Vegetation within this wetland is dominated by American glasswort (*Salicornia virginica*) and saltmarsh rush (*Juncus gerardi*). The boundary of the wetland was determined through observations of topography, vegetation patterns, and other indicators of regular tidal inundation such as debris racks, drift lines, and sediment deposits. Wetland sample plots were located in areas of the suspected wetland/upland interface. Positive indicators of wetland hydrology included saturation to the surface. Indicators of hydric soils included low chroma color soil matrices and bright concentrations within the upper 6 inches of the soil profile. The eastern boundary of the wetland was flagged at the point where emergent vegetation transitioned to bare sand. Vegetation at this point comprised less than 5 percent of land cover. Photographs of the wetland and surrounding area are presented in Appendix D.

Non-wetland waters on the site are present within the study area in the form of the open waters of Coos Bay. These non-wetland waters are subject to tidal fluctuations and therefore tidal height records were obtained. Tidal datums from the Charleston, Oregon, station (Station #9432780) were downloaded from NOAA and are found in Appendix E of this report. The Highest Measured Tide (HMT) elevation was converted to the North American Vertical Datum of 1988 (NAVD88). Based on conversations with USACE project manager Tyler Krug, the Mean High Water (MHW) was left in Mean Lowest Low Water (MLLW) datum. Additionally, Mr. Krug recommended that the high tide line be measured instead of utilizing the Mean Higher-high Water (MHHW) datum elevation (Krug, 2019). This line is established through observations of water lines, algae, debris racks and other indicators of normal high tide levels. Based on observations in the field and subsequent downloading of lidar topographic data, this elevation was estimated at 9.5 feet using the MLLW datum and 9 feet when referenced to NAVD88 datum. Table 2 below summarizes the different jurisdictional elevations of surface waters for the project.

Table 2. Tidal Elevations

| Tidal Elevation | Station 9432780 MLLW values | NAVD88 Benchmark Elevation | Resulting NAVD88 Elevation | Elevational boundary/Jurisdiction |
|-----------------------------|-----------------------------|----------------------------|----------------------------|-----------------------------------|
| Highest measured tide (HMT) | 10.26 | 0.50 | 10.68 | Tidal Waterway/DSL |
| Mean high water (MHW) | 6.96 | 0.50 | 6.46 | Section 404 (RHA) waters /USACE |
| High Tide Line | 9.5* | 0.50 | 9.0 | Section 10 (CWA) Waters/USACE |

*Determined through observations in the field and discussions with Tyler Krug, Portland USACE

These various elevations were drawn on the attached maps of the site using lidar topographic data obtained from the Oregon Department of Geology and Mineral Industries (DOGAMI). The only portions of the study area that intersect with the shorelines of Coos Bay are project areas A and B (Appendix B, Figures 6A, and 6B).

DEVIATION FROM LWI OR NWI

The NWI (USFWS, 2018) mapping within the study area is depicted on Appendix B, Figure 3. As shown in Figure 3, there are three wetlands mapped within the project area. The NWI mapped wetlands within the project area and their existence within the project area is summarized in Table 3 below.

Table 3. NWI Mapping

| NWI Code | NWI Cowardin Class | Confirmed Within Study Area? |
|-----------------|--|-------------------------------------|
| E1UBL | Estuarine, Subtidal, Unconsolidated bottom, Subtidal | Yes |
| E2USN | Estuarine, Intertidal, Unconsolidated shore, Regularly flooded | No |
| E2EM1N | Estuarine, Intertidal, Emergent, Persistent, Regularly flooded | Yes |

A local wetland inventory (LWI) has not been completed for this portion of Coos County. The wetlands identified on the NWI map were identified during the site visit except for the E2USN wetland located in the southeast portion of the study area. Because of tidal water levels present during the site visit, the existence of unvegetated tidal flats could not be confirmed. However, no persistent vegetation was observed in these areas. It should be noted that the southern area of this mapped wetland currently exists as riprapped banks and airfield fill. Tidal water movement corresponding to these banks may have resulted in the dissipation of tidal flats in this NWI mapped wetland. No other deviations were reported.

MAPPING METHOD

A recent color aerial photograph with the study area boundary was used as the base map for the field study. The study area map is based off AutoCAD drawings of the airport and potential work areas. GPS location data for the sample plot locations and photograph locations were collected using a Trimble Geo7X Mapping Grade GPS unit (Appendix B, Figure 6B). Accuracy for all mapped features is estimated at sub-meter or less based on the manufacturer's reported tolerance for the instrument and the post-processing report. Digitized mapping and cartography was completed in ArcMap. Soil mapping and NWI units are depicted on Figures 3 and 4. Current aerial photographs depicting the individual study areas are included in Figures 6A–6E. Ground-level site photographs are included in Appendix D.

ADDITIONAL INFORMATION

The only study area that includes wetlands and the potential of in-water work is Study Area B. Non-wetland waters are within Study Area A but it should be noted that no in-water work is proposed within this area. The remaining study areas (C–E) are either well drained uplands dominated by upland grasses and forbs or currently exist in a developed state.

RESULTS AND CONCLUSIONS

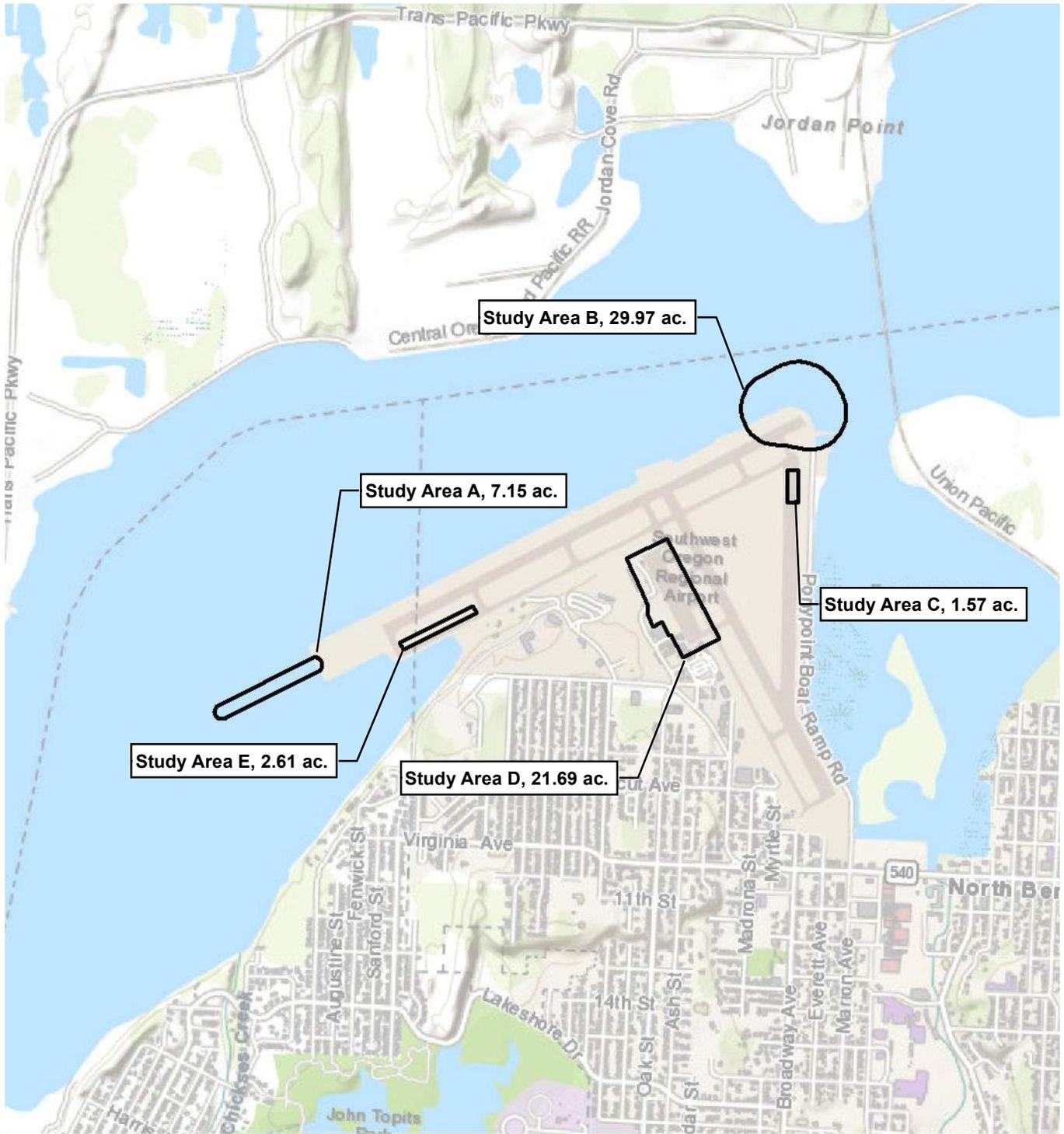
The study area exists as routinely maintained uplands vegetated with a mixture of upland grasses and forbs, previously developed areas, and the shoreline of Coos Bay. The majority of the study area has sandy soils that were likely imported when the airport was initially constructed. Through the course of the routine on-site wetland delineation, a small tidally influenced emergent wetland was identified and delineated in the southwest portion of Study Area B. No wetlands or positive indicators of wetland soils, hydrology, or vegetation were identified within any of the other project areas. In addition to the emergent wetland, non-wetland waters exist with Study Areas A and B in the form of the tidal waters of Coos Bay. Tidal elevations that correspond with various jurisdictional limits for the USACE and Oregon Department of State Lands (DSL) were obtained from the Charleston, Oregon tidal gauge station. These elevations were drawn on the Study Areas A and B maps using downloaded lidar data.

REQUIRED DISCLAIMER

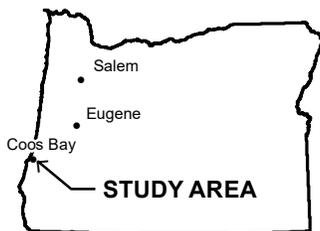
This report documents the investigation, best professional judgment, and conclusions of the investigator. It is correct and complete to the best of my knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the Oregon Department of State Lands in accordance with OAR 141-090-0005 through 141-090-0055.

Appendix A

Figures



ESRI WORLD STREET MAP (2019).



OREGON



SCALE: 1" = 2,000'



PREPARED FOR: MEAD AND HUNT INC.



LOCATION MAP
 SW OREGON REGIONAL AIRPORT SAFETY AREA IMPROVEMENTS
 NORTH BEND, COOS COUNTY, OREGON

FEB 2019
90368.000

FIGURE

1

Study Area B, 29.97 ac.

Study Area E, 2.61 ac.

Study Area C, 1.57 ac.

Study Area D, 21.69 ac.

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY

SECTION 9 T25S R13W W.M. COOS COUNTY

1" = 400'

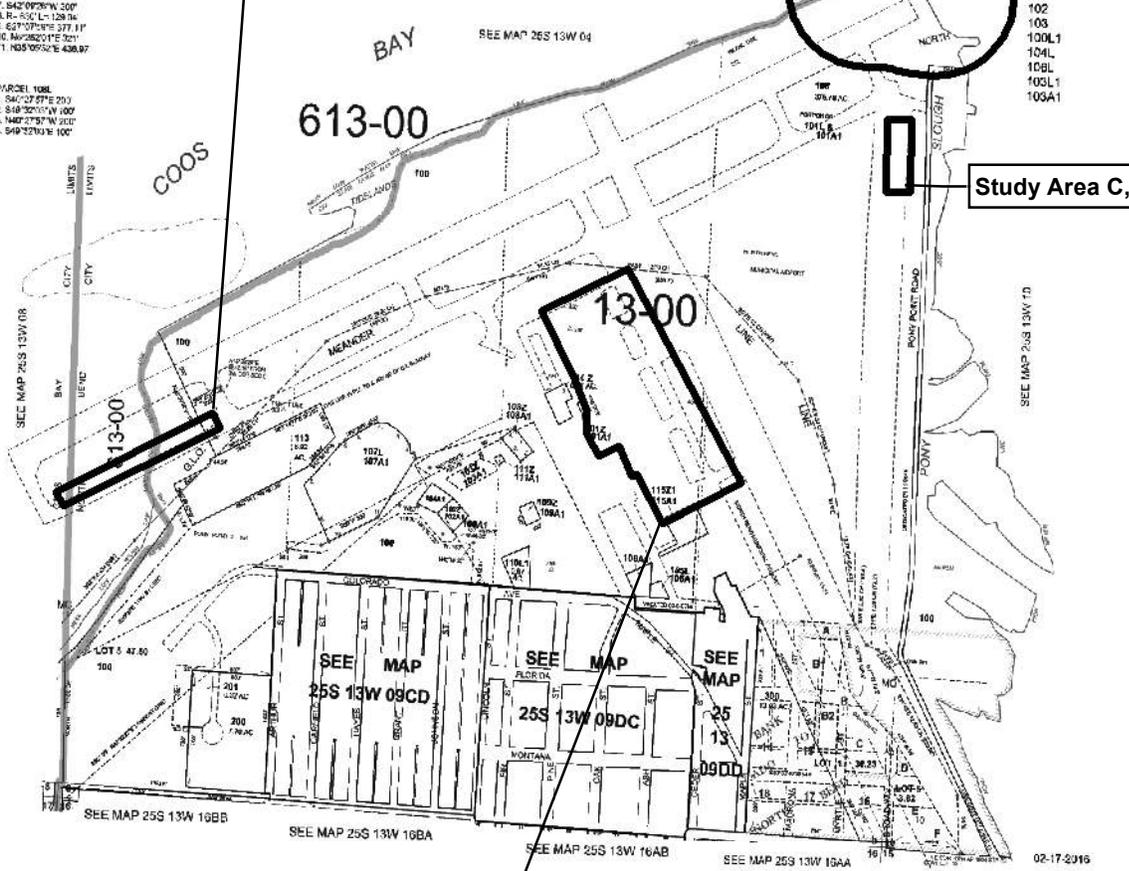
25S 13W 09 & INDEX NORTH BEND

- PARCEL 107L
1. R=270° L=63.26'
 2. R=27° L=211.76'
 3. R=270° L=184.28'
 4. R=45° L=128.44'
 5. S=282°30'30" W=200'
 6. R=130° L=42.55'
 7. S=42°00'00" W=200'
 8. R=45° L=128.44'
 9. S=67°00'00" W=277.11'
 10. R=282°30'30" W=200'
 11. N=89°00'00" E=438.87'

- PARCEL 108L
1. S=42°00'00" W=200'
 2. S=49°30'00" W=100'
 3. N=42°30'00" W=200'
 4. S=49°30'00" W=100'

CANCELLED NO.

- 100A1
- 100A2
- 101
- 102
- 103
- 100L1
- 104L
- 108L
- 103L1
- 103A1



SCALE: 1" = 1,200'



PREPARED FOR: MEAD AND HUNT INC.

ORMAP (2019).



TAX LOT MAP 25S 13W 09
 SW OREGON REGIONAL AIRPORT SAFETY AREA IMPROVEMENTS
 NORTH BEND, COOS COUNTY, OREGON

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90368.000

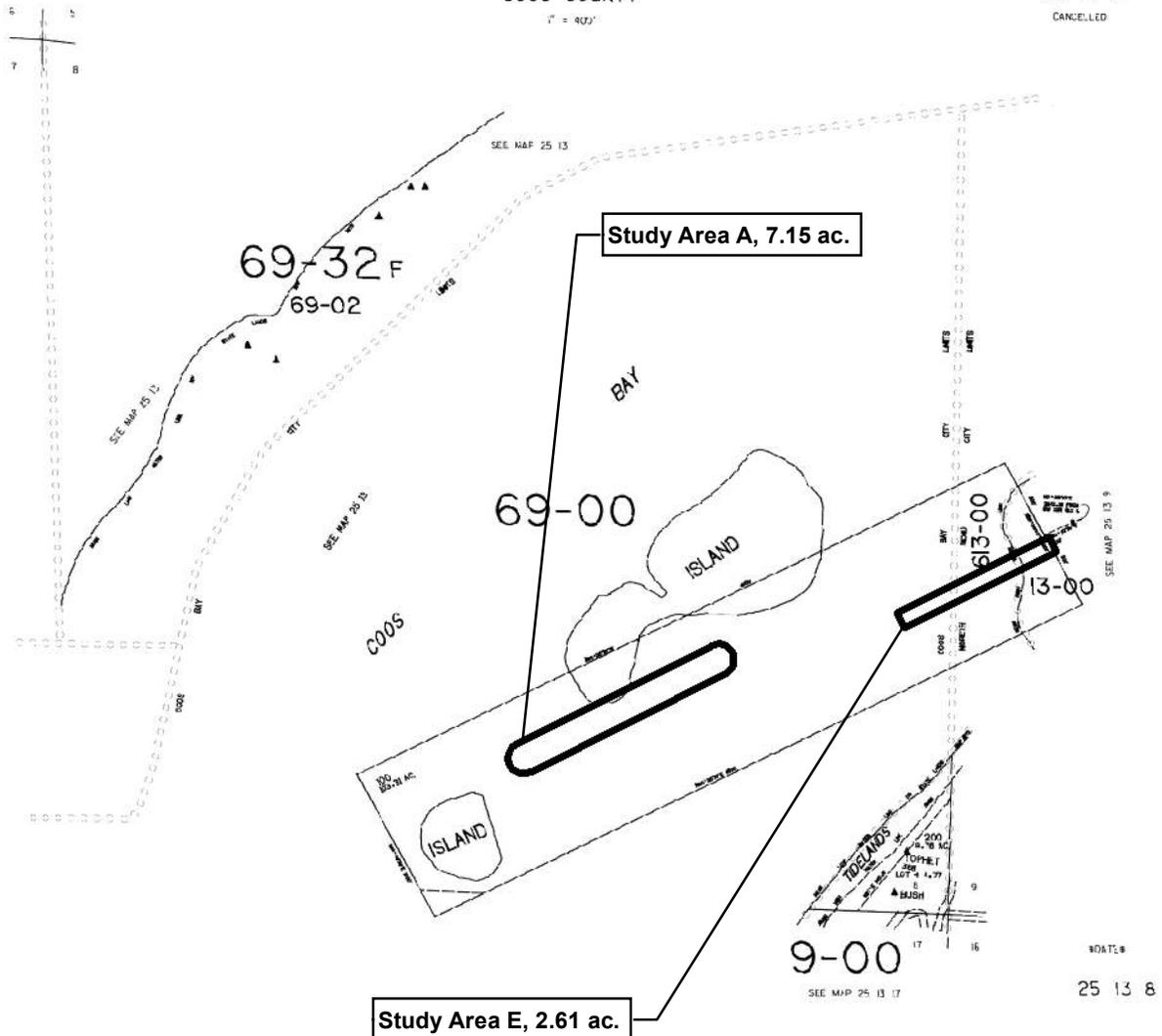
FIGURE

2A

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSE ONLY

SECTION 8 T.25S. R.13W. W.M.
COOS COUNTY
1" = 800'

25 13 8
CANCELLED



ORMAP (2019).

PREPARED FOR: MEAD AND HUNT INC.

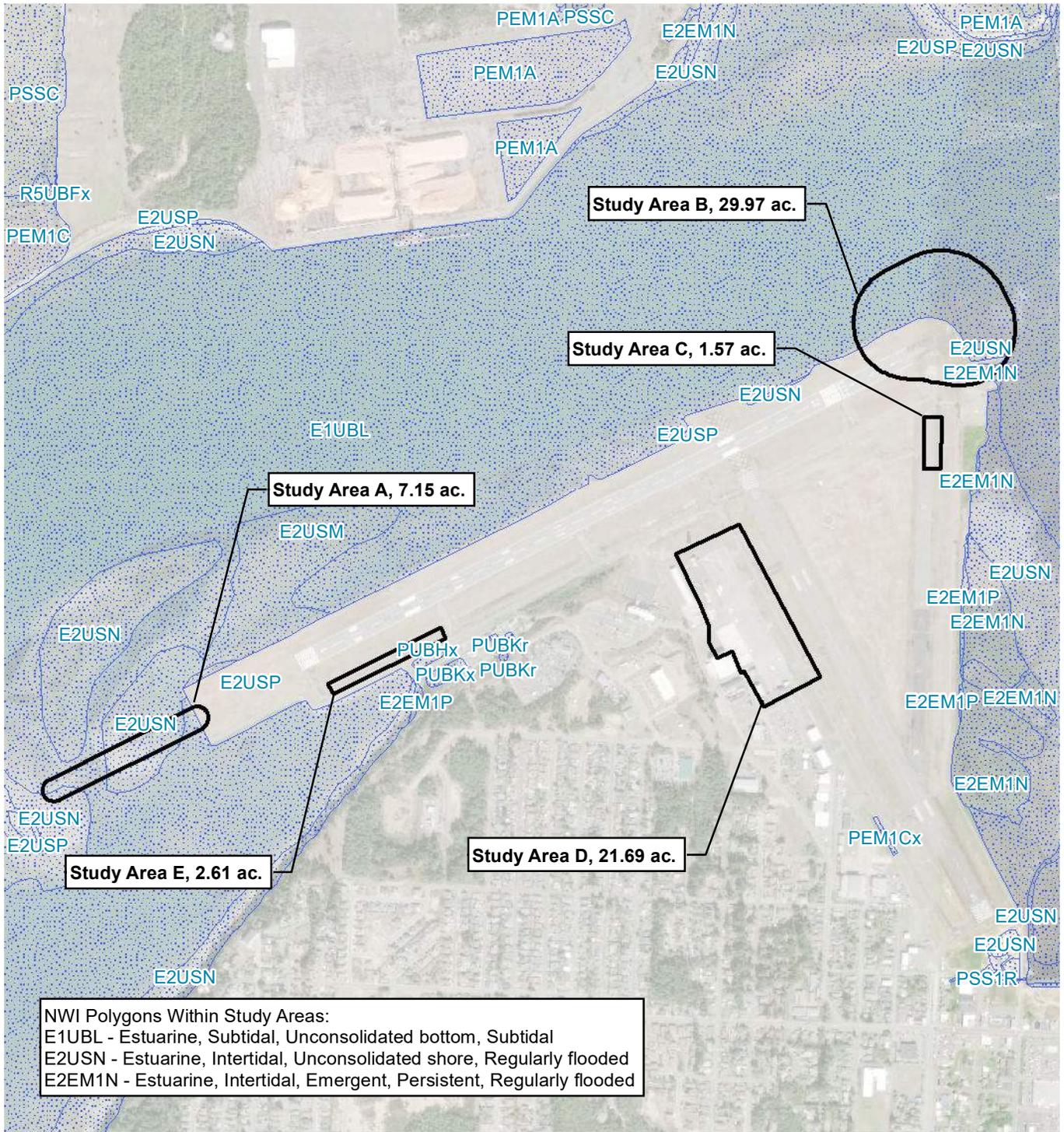


TAX LOT MAP 25 13 08
 SW OREGON REGIONAL AIRPORT SAFETY AREA IMPROVEMENTS
 NORTH BEND, COOS COUNTY, OREGON

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90368.000

FIGURE

2B



WETLAND POLYGONS FROM US FISH AND WILDLIFE SERVICE (2019).



SCALE: 1" = 1,300'



PREPARED FOR: MEAD AND HUNT INC.

Filename: L:\Projects\90000\90300-90368 SW OR Reg Airport\GIS\OTH_Regional_Safety.mxd Plot Date/Time: 2/15/2019 1:51:41 PM

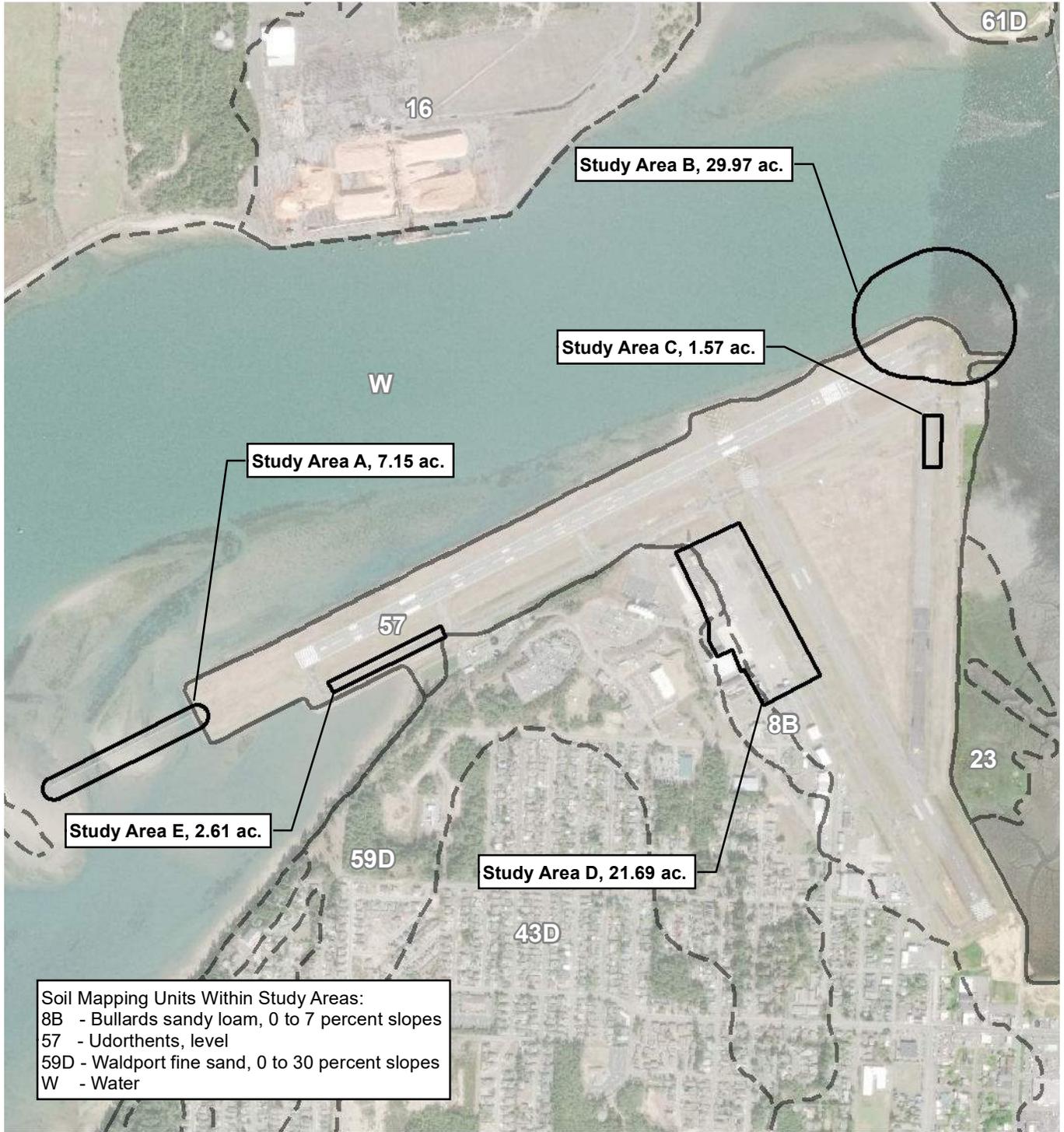


NATIONAL WETLANDS INVENTORY
 SW OREGON REGIONAL AIRPORT SAFETY AREA IMPROVEMENTS
 NORTH BEND, COOS COUNTY, OREGON

FEB 2019
 90368.000

FIGURE

3



SCALE: 1" = 1,300'



PREPARED FOR: MEAD AND HUNT INC.



COUNTY SOIL SURVEY MAP
 SW OREGON REGIONAL AIRPORT SAFETY AREA IMPROVEMENTS
 NORTH BEND, COOS COUNTY, OREGON

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 90368.000

FIGURE

4



AERIAL PHOTOGRAPH PROVIDED BY ESRI (2019).



SCALE: 1" = 1,300'



PREPARED FOR: MEAD AND HUNT INC.

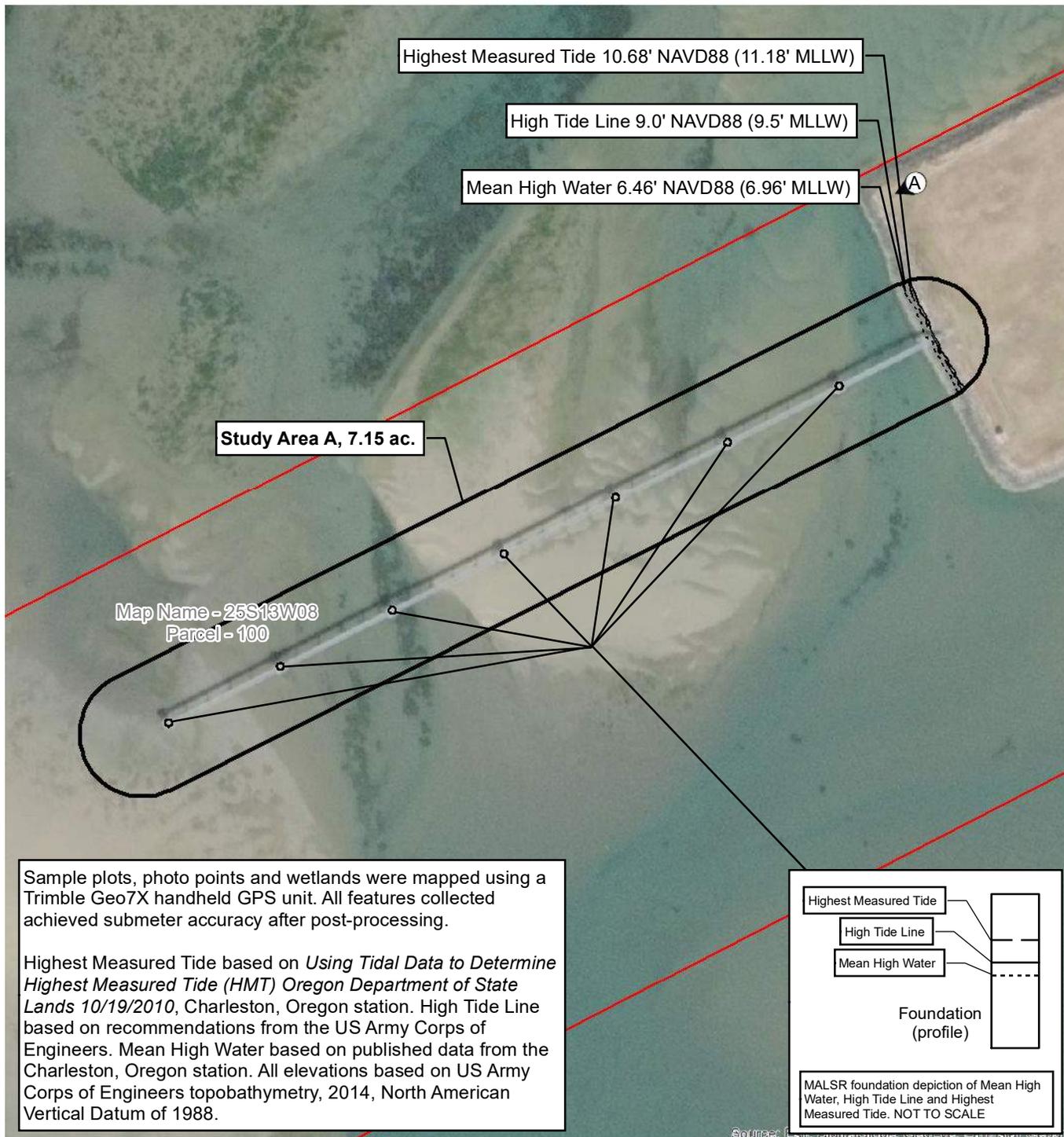


AERIAL PHOTOGRAPH
 SW OREGON REGIONAL AIRPORT SAFETY AREA IMPROVEMENTS
 NORTH BEND, COOS COUNTY, OREGON

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90368.000

FIGURE

5

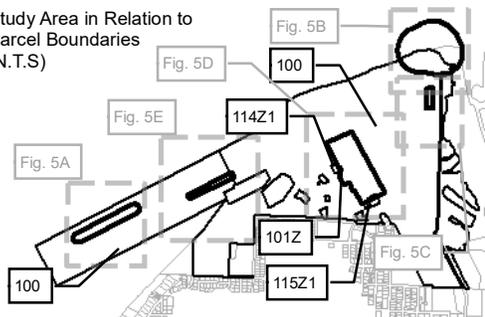


SOURCE: www.esri.com, 2019. AERIAL PHOTOGRAPH PROVIDED BY ESRI (2019).

Legend

 Photo Points

Study Area in Relation to Parcel Boundaries (N.T.S)

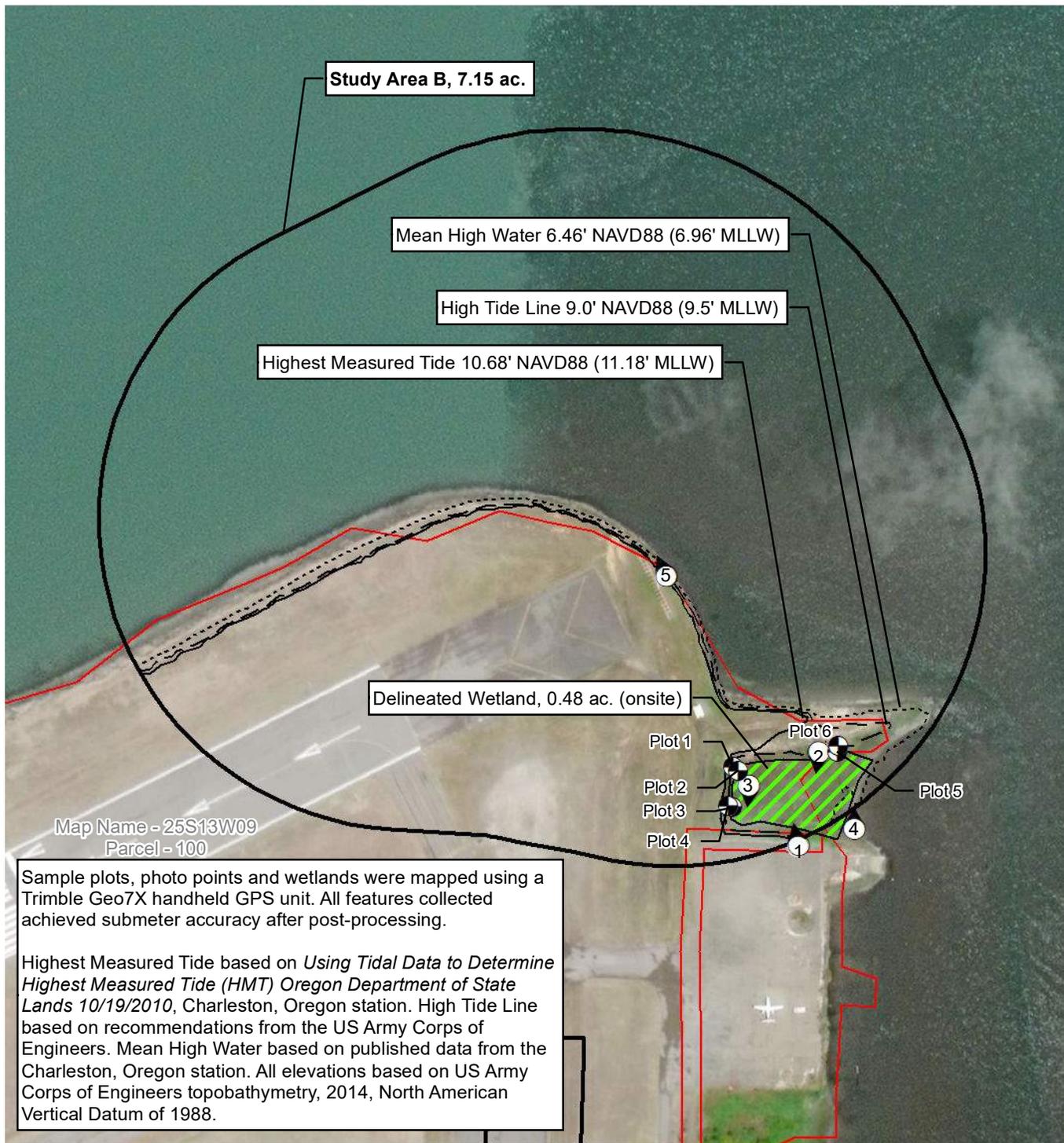


SCALE: 1" = 240'



PREPARED FOR: MEAD AND HUNT INC.





Map Name - 25S13W09
Parcel - 100

Sample plots, photo points and wetlands were mapped using a Trimble Geo7X handheld GPS unit. All features collected achieved submeter accuracy after post-processing.

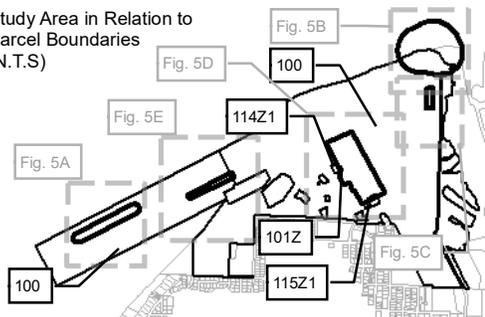
Highest Measured Tide based on *Using Tidal Data to Determine Highest Measured Tide (HMT) Oregon Department of State Lands 10/19/2010*, Charleston, Oregon station. High Tide Line based on recommendations from the US Army Corps of Engineers. Mean High Water based on published data from the Charleston, Oregon station. All elevations based on US Army Corps of Engineers topobathymetry, 2014, North American Vertical Datum of 1988.

AERIAL PHOTOGRAPH PROVIDED BY ESRI (2019).

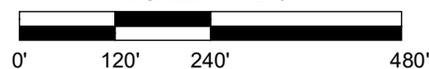
Legend

- Plots
- Photo Points

Study Area in Relation to Parcel Boundaries (N.T.S)



SCALE: 1" = 240'



PREPARED FOR: MEAD AND HUNT INC.

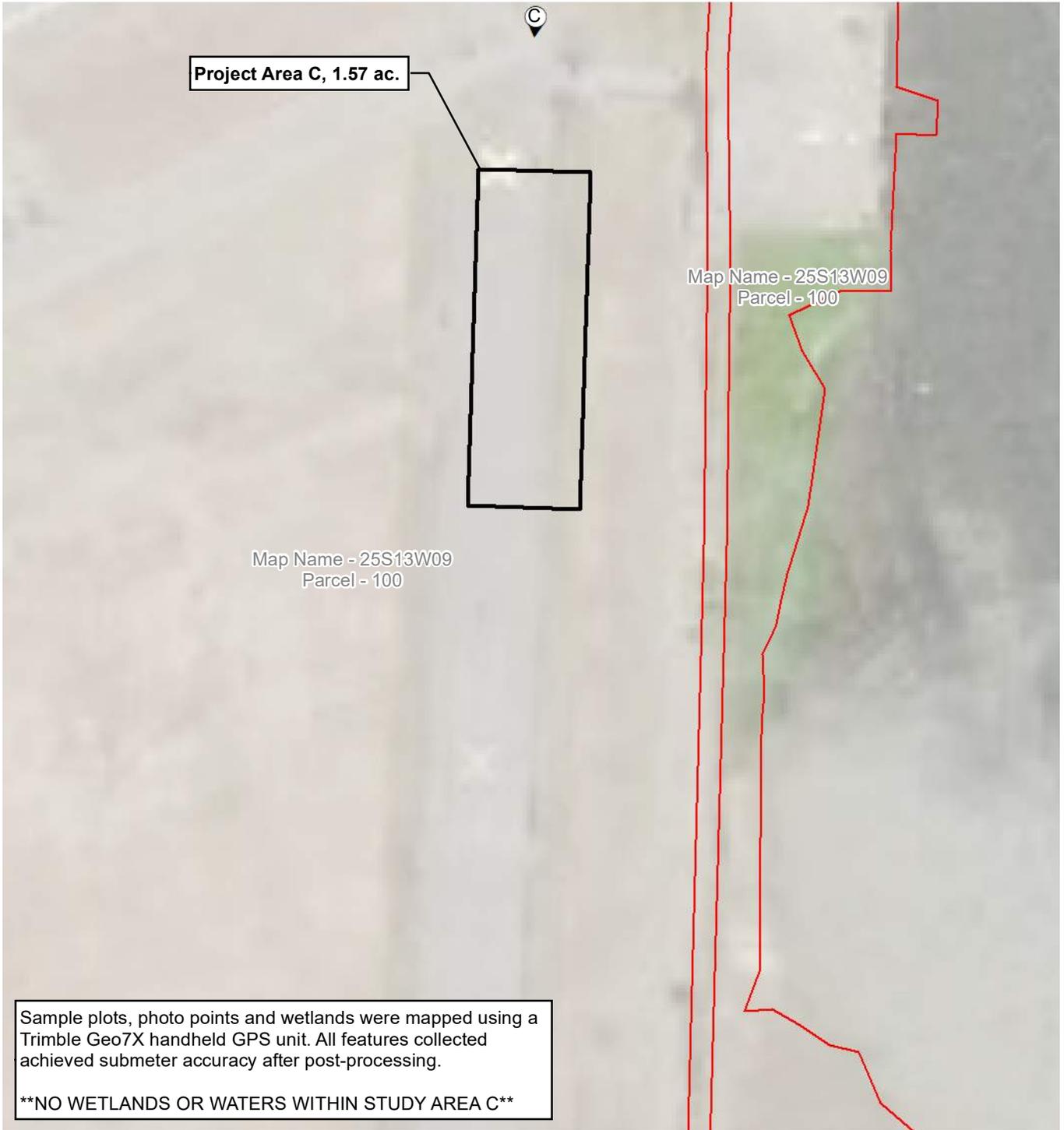


WETLANDS & WATERS OF THE US/OREGON MAP
SW OREGON REGIONAL AIRPORT SAFETY AREA IMPROVEMENTS
NORTH BEND, COOS COUNTY, OREGON

FEB 2019
90368.000

FIGURE

6B



Sample plots, photo points and wetlands were mapped using a Trimble Geo7X handheld GPS unit. All features collected achieved submeter accuracy after post-processing.

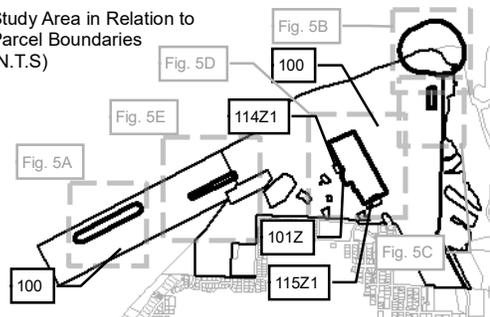
****NO WETLANDS OR WATERS WITHIN STUDY AREA C****

AERIAL PHOTOGRAPH PROVIDED BY ESRI (2019).

Legend

Photo Points

Study Area in Relation to Parcel Boundaries (N.T.S)



SCALE: 1" = 200'



PREPARED FOR: MEAD AND HUNT INC.

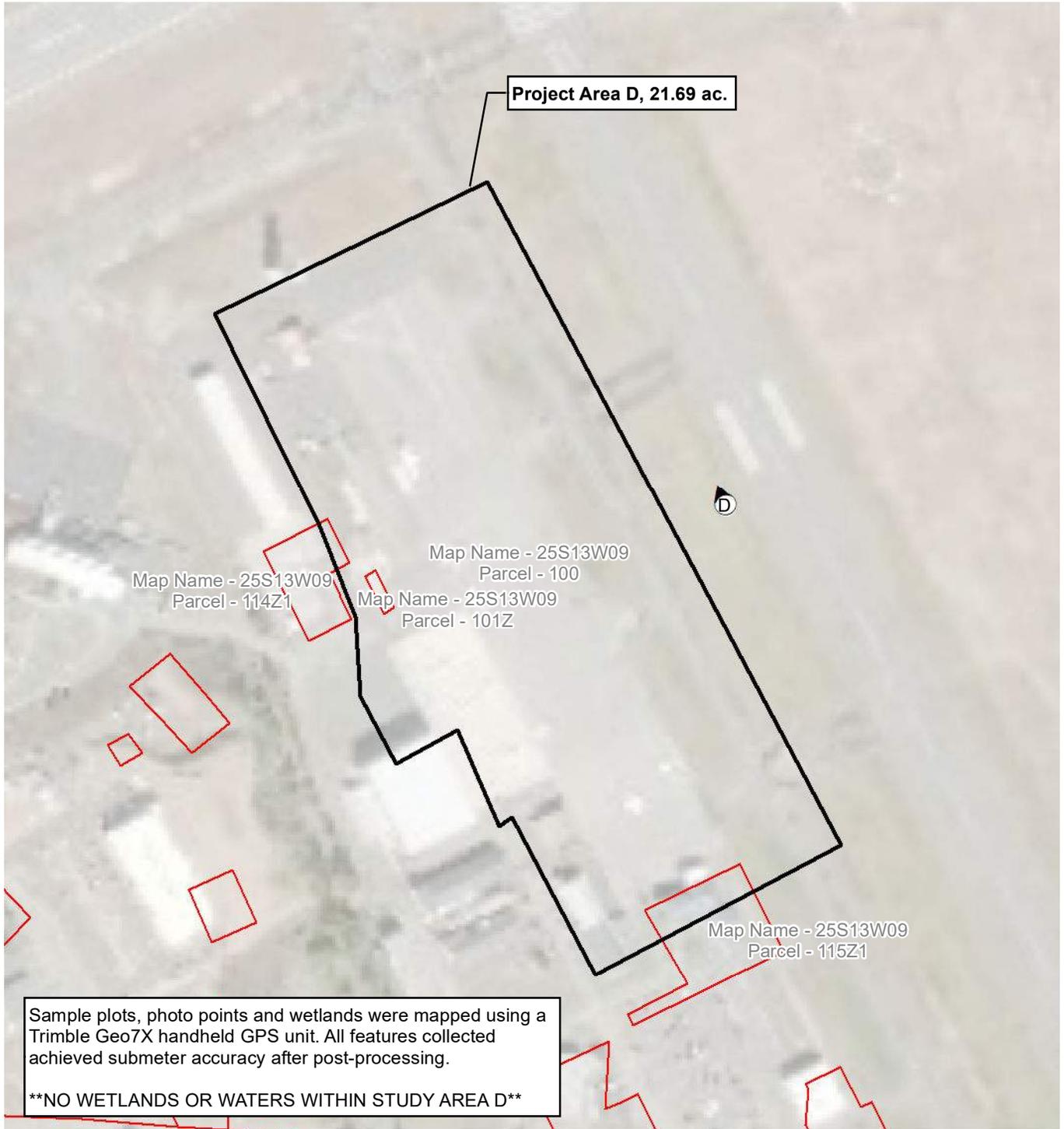


STUDY AREA C MAP
 SW OREGON REGIONAL AIRPORT SAFETY AREA IMPROVEMENTS
 NORTH BEND, COOS COUNTY, OREGON

FEB 2019
90368.000

FIGURE

6C



Sample plots, photo points and wetlands were mapped using a Trimble Geo7X handheld GPS unit. All features collected achieved submeter accuracy after post-processing.

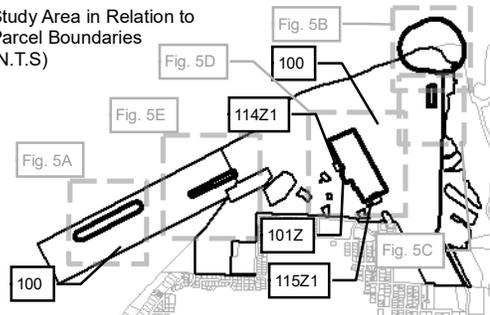
****NO WETLANDS OR WATERS WITHIN STUDY AREA D****

AERIAL PHOTOGRAPH PROVIDED BY ESRI (2019).

Legend

Photo Points

Study Area in Relation to Parcel Boundaries (N.T.S)



SCALE: 1" = 300'



PREPARED FOR: MEAD AND HUNT INC.

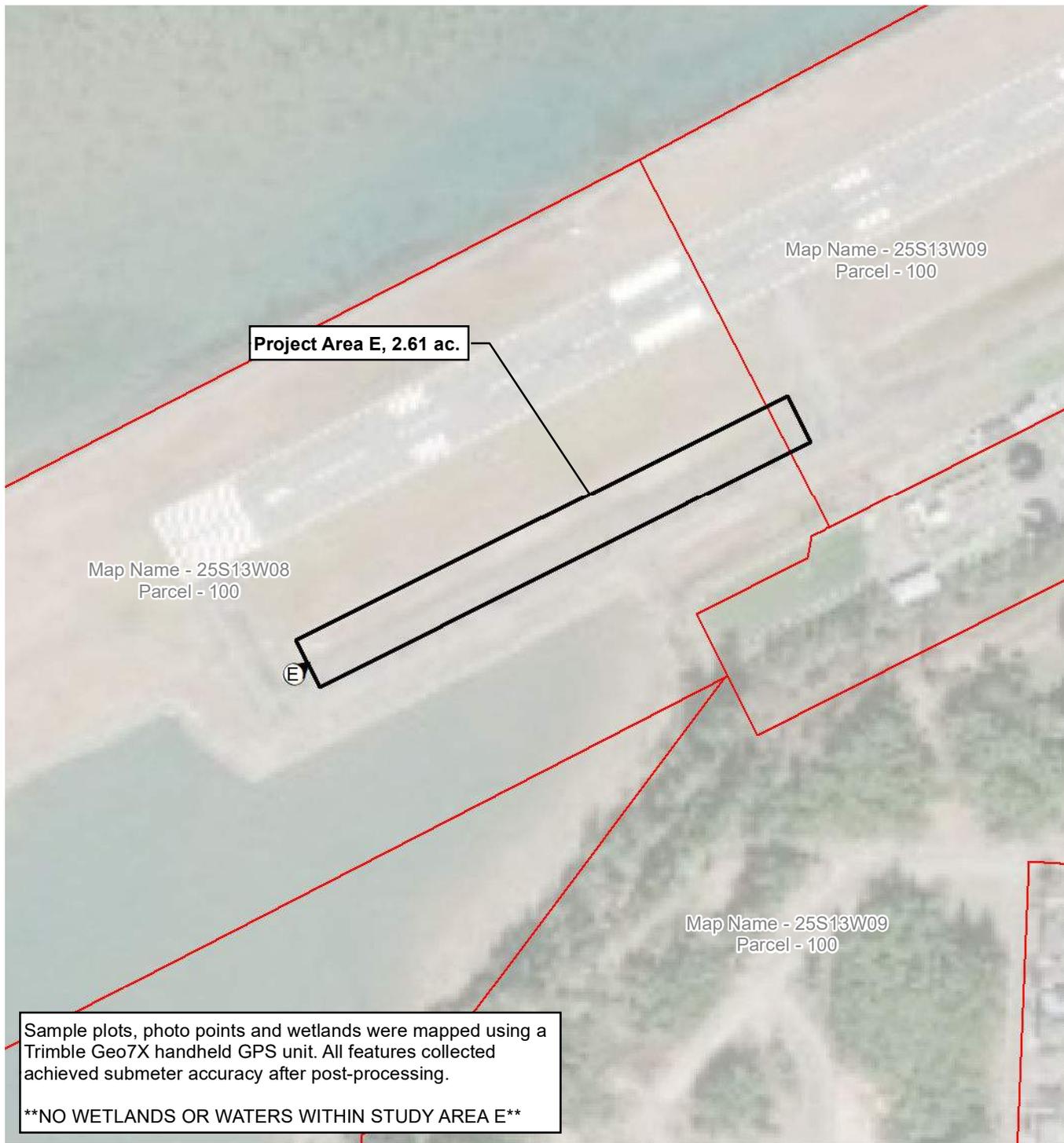


STUDY AREA D MAP
 SW OREGON REGIONAL AIRPORT SAFETY AREA IMPROVEMENTS
 NORTH BEND, COOS COUNTY, OREGON

FEB 2019
 90368.000

FIGURE

6D



Sample plots, photo points and wetlands were mapped using a Trimble Geo7X handheld GPS unit. All features collected achieved submeter accuracy after post-processing.

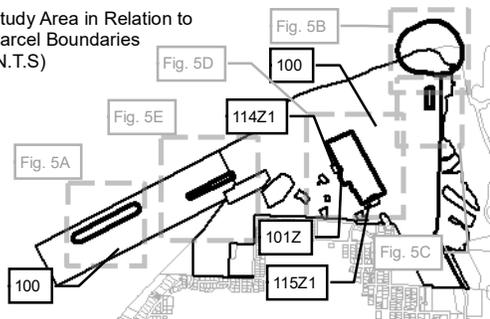
****NO WETLANDS OR WATERS WITHIN STUDY AREA E****

AERIAL PHOTOGRAPH PROVIDED BY ESRI (2019).

Legend

 Photo Points

Study Area in Relation to Parcel Boundaries (N.T.S)



SCALE: 1" = 300'



PREPARED FOR: MEAD AND HUNT INC.



STUDY AREA E MAP
 SW OREGON REGIONAL AIRPORT SAFETY AREA IMPROVEMENTS
 NORTH BEND, COOS COUNTY, OREGON

FEB 2019
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FIGURE

6E

Appendix B

Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: SW Oregon Regional Airport Safety Area Improvements City/County: North Bend/Coos Sampling Date: 11/15/2018
 Applicant/Owner: Mead and Hunt Inc. State: Oregon Sampling Point: 1
 Investigator(s): Bieger Section, Township, Range: Section 9, T25S, R13W
 Landform (hillslope, terrace etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 5
 Subregion (LRR): A - Northwest Forests and Coast Lat: 43.422719 Long: -124.240052 Datum: WGS84
 Soil Map Unit Name: 57- Udorthents, level NWI Classification: E2EM1N
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
 Are Vegetation , Soil X, or Hydrology significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? Yes X No

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---------------------------------|-----------------|----------------|---|
| Hydrophytic Vegetation Present? | Yes <u>X</u> | No <u> </u> | Is the Sampled Area within a wetland? Yes <u> </u> No <u>X</u> |
| Hydric Soil Present? | Yes <u> </u> | No <u>X</u> | |
| Wetland Hydrology Present? | Yes <u> </u> | No <u>X</u> | |
| Remarks: | | | |

VEGETATION - Use scientific names of plants.

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: | |
|--|------------------|-------------------|------------------|--|--|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species | |
| 2. _____ | _____ | _____ | _____ | That Are OBL, FACW, or FAC: <u>1</u> (A) | |
| 3. _____ | _____ | _____ | _____ | Total Number of Dominant | |
| 4. _____ | _____ | _____ | _____ | Species Across All Strata: <u>1</u> (B) | |
| Total Cover: | <u>0</u> | | | Percent of Dominant Species | |
| Sapling/Shrub Stratum (Plot size: 30' r) | | | | That Are OBL, FACW, or FAC: <u>100%</u> (A/B) | |
| 1. _____ | _____ | _____ | _____ | Prevalence Index worksheet: | |
| 2. _____ | _____ | _____ | _____ | Total % Cover of: _____ Multiply by: | |
| 3. _____ | _____ | _____ | _____ | OBL species <u>90</u> x 1 = <u>90</u> | |
| 4. _____ | _____ | _____ | _____ | FACW species <u>0</u> x 2 = _____ | |
| 5. _____ | _____ | _____ | _____ | FAC species <u>0</u> x 3 = _____ | |
| Total Cover: | <u>0</u> | | | FACU species <u>0</u> x 4 = _____ | |
| Herb Stratum (Plot size: 5' r) | | | | UPL species <u>0</u> x 5 = _____ | |
| 1. <u>Salicornia depressa</u> | <u>90</u> | <u>Yes</u> | <u>OBL</u> | Column Totals: <u>90</u> (A) <u>90</u> (B) | |
| 2. _____ | _____ | _____ | _____ | Prevalence Index = B/A = <u>1.00</u> | |
| 3. _____ | _____ | _____ | _____ | Hydrophytic Vegetation Indicators: | |
| 4. _____ | _____ | _____ | _____ | 1- Rapid Test for Hydrophytic Vegetation | |
| 5. _____ | _____ | _____ | _____ | <u>X</u> 2- Dominance Test is >50% | |
| 6. _____ | _____ | _____ | _____ | 3- Prevalence Index is ≤3.0 ¹ | |
| 7. _____ | _____ | _____ | _____ | 4- Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) | |
| 8. _____ | _____ | _____ | _____ | 5- Wetland Non-Vascular Plants ¹ | |
| Total Cover: | <u>90</u> | | | Problematic Hydrophytic Vegetation ¹ (Explain) | |
| Woody Vine Stratum (Plot Size: 30' r) | | | | ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. | |
| 1. _____ | _____ | _____ | _____ | Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> | |
| 2. _____ | _____ | _____ | _____ | | |
| Total Cover: | <u>0</u> | | | | |
| % Bare Ground in Herb Stratum <u>10</u> % | | | | | |
| Remarks: Data plot located near location where Salicornia started, slightly downslope from toe of adjacent banks. | | | | | |

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: SW Oregon Regional Airport Safety Area Improvements City/County: North Bend/Coos Sampling Date: 11/15/2018
 Applicant/Owner: Mead and Hunt Inc. State: Oregon Sampling Point: 2
 Investigator(s): Bieger Section, Township, Range: Section 9, T25S, R13W
 Landform (hillslope, terrace etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 5
 Subregion (LRR): A - Northwest Forests and Coast Lat: 43.422719 Long: -124.240052 Datum: WGS84
 Soil Map Unit Name: 57- Udorthents, level NWI Classification: E2EM1N

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? Yes X No _____

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---------------------------------|--------------|----------|--|
| Hydrophytic Vegetation Present? | Yes <u>X</u> | No _____ | Is the Sampled Area within a wetland? |
| Hydric Soil Present? | Yes <u>X</u> | No _____ | |
| Wetland Hydrology Present? | Yes <u>X</u> | No _____ | |
| Yes <u>X</u> No _____ | | | |

Remarks:

VEGETATION - Use scientific names of plants.

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|------------------|-------------------|------------------|---|-------------------|---------------------------------------|------------------|-------------------|------------------|-------------------------------|-----------|------------|------------|---------------------------|-----------|-----------|-------------|-----------------------|-------|-------|-------|----------|-------|-------|-------|----------|-------|-------|-------|----------|-------|-------|-------|----------|-------|-------|-------|----------|-------|-------|-------|------------------------|--|--|--|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: | <u>1</u> (A) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: | <u>1</u> (B) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Are OBL, FACW, or FAC: | <u>100%</u> (A/B) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | Prevalence Index worksheet: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Cover: <u>0</u> | | | | Total % Cover of: | Multiply by: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OBL species | | | | <u>80</u> x 1 = | <u>80</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FACW species | | | | <u>15</u> x 2 = | <u>30</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FAC species | | | | <u>0</u> x 3 = | _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FACU species | | | | <u>0</u> x 4 = | _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| UPL species | | | | <u>0</u> x 5 = | _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Column Totals: | | | | <u>95</u> (A) | <u>110</u> (B) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Prevalence Index = B/A = <u>1.16</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hydrophytic Vegetation Indicators: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1- Rapid Test for Hydrophytic Vegetation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>X</u> 2- Dominance Test is >50% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3- Prevalence Index is ≤3.0 ¹ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4- Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5- Wetland Non-Vascular Plants ¹ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Problematic Hydrophytic Vegetation ¹ (Explain) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Herb Stratum (Plot size: 5' r)</th> <th>Absolute % Cover</th> <th>Dominant Species?</th> <th>Indicator Status</th> </tr> </thead> <tbody> <tr> <td>1. <u>Salicornia depressa</u></td> <td><u>80</u></td> <td><u>Yes</u></td> <td><u>OBL</u></td> </tr> <tr> <td>2. <u>Juncus gerardii</u></td> <td><u>15</u></td> <td><u>No</u></td> <td><u>FACW</u></td> </tr> <tr> <td>3. _____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>4. _____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>5. _____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>6. _____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>7. _____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>8. _____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td colspan="2">Total Cover: <u>95</u></td> <td></td> <td></td> </tr> </tbody> </table> | | | | | | Herb Stratum (Plot size: 5' r) | Absolute % Cover | Dominant Species? | Indicator Status | 1. <u>Salicornia depressa</u> | <u>80</u> | <u>Yes</u> | <u>OBL</u> | 2. <u>Juncus gerardii</u> | <u>15</u> | <u>No</u> | <u>FACW</u> | 3. _____ | _____ | _____ | _____ | 4. _____ | _____ | _____ | _____ | 5. _____ | _____ | _____ | _____ | 6. _____ | _____ | _____ | _____ | 7. _____ | _____ | _____ | _____ | 8. _____ | _____ | _____ | _____ | Total Cover: <u>95</u> | | | |
| Herb Stratum (Plot size: 5' r) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. <u>Salicornia depressa</u> | <u>80</u> | <u>Yes</u> | <u>OBL</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. <u>Juncus gerardii</u> | <u>15</u> | <u>No</u> | <u>FACW</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Cover: <u>95</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Woody Vine Stratum (Plot Size: 30' r)</th> <th>Absolute % Cover</th> <th>Dominant Species?</th> <th>Indicator Status</th> </tr> </thead> <tbody> <tr> <td>1. _____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>2. _____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td colspan="2">Total Cover: <u>0</u></td> <td></td> <td></td> </tr> </tbody> </table> | | | | | | Woody Vine Stratum (Plot Size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status | 1. _____ | _____ | _____ | _____ | 2. _____ | _____ | _____ | _____ | Total Cover: <u>0</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Woody Vine Stratum (Plot Size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. _____ | _____ | _____ | _____ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Cover: <u>0</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| % Bare Ground in Herb Stratum <u>5</u> % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: SW Oregon Regional Airport Safety Area Improvements City/County: North Bend/Coos Sampling Date: 11/15/2018
 Applicant/Owner: Mead and Hunt Inc. State: Oregon Sampling Point: 3
 Investigator(s): Bieger Section, Township, Range: Section 9, T25S, R13W
 Landform (hillslope, terrace etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 5
 Subregion (LRR): A - Northwest Forests and Coast Lat: 43.422719° Long: -124.240052 Datum: WGS84
 Soil Map Unit Name: 57- Udorthents, level NWI Classification: E2EM1N

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil X _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? Yes X No _____

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---------------------------------|--------------|----------|--|
| Hydrophytic Vegetation Present? | Yes <u>X</u> | No _____ | Is the Sampled Area within a wetland? |
| Hydric Soil Present? | Yes <u>X</u> | No _____ | |
| Wetland Hydrology Present? | Yes <u>X</u> | No _____ | |
| Yes <u>X</u> No _____ | | | |

Remarks:

VEGETATION - Use scientific names of plants.

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: | |
|---|------------------|-------------------|------------------|---|------------------------------|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: | <u>1</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: | <u>1</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Are OBL, FACW, or FAC: | <u>100%</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | Prevalence Index worksheet: | |
| Total Cover: | <u>0</u> | | | Total % Cover of: | Multiply by: |
| Sapling/Shrub Stratum (Plot size: 30' r) | | | | OBL species | <u>0</u> x 1 = _____ |
| 1. _____ | _____ | _____ | _____ | FACW species | <u>95</u> x 2 = <u>190</u> |
| 2. _____ | _____ | _____ | _____ | FAC species | <u>0</u> x 3 = _____ |
| 3. _____ | _____ | _____ | _____ | FACU species | <u>0</u> x 4 = _____ |
| 4. _____ | _____ | _____ | _____ | UPL species | <u>0</u> x 5 = _____ |
| 5. _____ | _____ | _____ | _____ | Column Totals: | <u>95</u> (A) <u>190</u> (B) |
| Total Cover: | <u>0</u> | | | Prevalence Index = B/A = | <u>2.00</u> |
| Herb Stratum (Plot size: 5' r) | | | | Hydrophytic Vegetation Indicators: | |
| 1. <u>Juncus gerardii</u> | <u>95</u> | <u>Yes</u> | <u>FACW</u> | 1- Rapid Test for Hydrophytic Vegetation | |
| 2. _____ | _____ | _____ | _____ | <u>X</u> 2- Dominance Test is >50% | |
| 3. _____ | _____ | _____ | _____ | 3- Prevalence Index is ≤3.0 ¹ | |
| 4. _____ | _____ | _____ | _____ | 4- Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) | |
| 5. _____ | _____ | _____ | _____ | 5- Wetland Non-Vascular Plants ¹ | |
| 6. _____ | _____ | _____ | _____ | Problematic Hydrophytic Vegetation ¹ (Explain) | |
| 7. _____ | _____ | _____ | _____ | Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. | |
| 8. _____ | _____ | _____ | _____ | Hydrophytic Vegetation Present? Yes <u>X</u> No _____ | |
| Total Cover: | <u>95</u> | | | | |
| Woody Vine Stratum (Plot Size: 30' r) | | | | | |
| 1. _____ | _____ | _____ | _____ | | |
| 2. _____ | _____ | _____ | _____ | | |
| Total Cover: | <u>0</u> | | | | |
| % Bare Ground in Herb Stratum | <u>5</u> % | | | | |

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: SW Oregon Regional Airport Safety Area Improvements City/County: North Bend/Coos Sampling Date: 11/15/2018
 Applicant/Owner: Mead and Hunt Inc. State: Oregon Sampling Point: 4
 Investigator(s): Bieger Section, Township, Range: Section 9, T25S, R13W
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 Soil Map Unit Name: 57- Udorthents, level NWI Classification: E2EM1N

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil X _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? Yes X No _____

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---------------------------------|--------------|-------------|--|
| Hydrophytic Vegetation Present? | Yes <u>X</u> | No _____ | Is the Sampled Area within a wetland? |
| Hydric Soil Present? | Yes _____ | No <u>X</u> | |
| Wetland Hydrology Present? | Yes _____ | No <u>X</u> | |
| Yes _____ No <u>X</u> | | | |

Remarks:

VEGETATION - Use scientific names of plants.

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: | |
|---|------------------|-------------------|------------------|---|-------------------|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: | <u>1</u> (A) |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: | <u>1</u> (B) |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Are OBL, FACW, or FAC: | <u>100%</u> (A/B) |
| 4. _____ | _____ | _____ | _____ | Prevalence Index worksheet: | |
| Total Cover: <u>0</u> | | | | Total % Cover of: | Multiply by: |
| OBL species <u>0</u> x 1 = _____ | | | | FACW species <u>100</u> x 2 = <u>200</u> | |
| FACW species _____ | | | | FAC species <u>0</u> x 3 = _____ | |
| FACU species _____ | | | | UPL species <u>0</u> x 5 = _____ | |
| UPL species _____ | | | | Column Totals: <u>100</u> (A) <u>200</u> (B) | |
| Total Cover: <u>0</u> | | | | Prevalence Index = B/A = <u>2.00</u> | |
| Hydrophytic Vegetation Indicators: | | | | | |
| 1- Rapid Test for Hydrophytic Vegetation | | | | | |
| <u>X</u> 2- Dominance Test is >50% | | | | | |
| 3- Prevalence Index is ≤3.0 ¹ | | | | | |
| 4- Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) | | | | | |
| 5- Wetland Non-Vascular Plants ¹ | | | | | |
| Problematic Hydrophytic Vegetation ¹ (Explain) | | | | | |
| Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. | | | | | |
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____ | | | | | |
| Herb Stratum (Plot size: 5' r) | | | | | |
| 1. <u>Juncus gerardii</u> | <u>100</u> | <u>Yes</u> | <u>FACW</u> | | |
| 2. _____ | _____ | _____ | _____ | | |
| 3. _____ | _____ | _____ | _____ | | |
| 4. _____ | _____ | _____ | _____ | | |
| 5. _____ | _____ | _____ | _____ | | |
| 6. _____ | _____ | _____ | _____ | | |
| 7. _____ | _____ | _____ | _____ | | |
| 8. _____ | _____ | _____ | _____ | | |
| Total Cover: <u>100</u> | | | | | |
| Woody Vine Stratum (Plot Size: 30' r) | | | | | |
| 1. _____ | _____ | _____ | _____ | | |
| 2. _____ | _____ | _____ | _____ | | |
| Total Cover: <u>0</u> | | | | | |
| % Bare Ground in Herb Stratum <u>0</u> % | | | | | |

Remarks: Plot located on slightly higher ground than adjacent wetland plot. Landward of floating debris racks. Plot is obviously higher than surrounding area and not subject to normal tidal inundation.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: SW Oregon Regional Airport Safety Area Improvements City/County: North Bend/Coos Sampling Date: 11/15/2018
 Applicant/Owner: Mead and Hunt Inc. State: Oregon Sampling Point: 5
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 Landform (hillslope, terrace etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 5
 Subregion (LRR): A - Northwest Forests and Coast Lat: 43.422719° Long: -124.240052 Datum: WGS84
 Soil Map Unit Name: 57- Udorthents, level NWI Classification: E2EM1N

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? "Normal Circumstances" present? (If needed, explain any answers in remarks)
 Are Vegetation , Soil , or Hydrology naturally problematic? Yes No

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|-----------------------------|--|
| Hydrophytic Vegetation Present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Is the Sampled Area within a wetland? |
| Hydric Soil Present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Wetland Hydrology Present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | | | |

Remarks:

VEGETATION - Use scientific names of plants.

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) |
|--|------------------|-------------------|------------------|---|
| 1. _____ 2. _____ 3. _____ 4. _____ Total Cover: <u>0</u> | | | | |
| Sapling/Shrub Stratum (Plot size: 30' r) | | | | Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B) |
| 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ Total Cover: <u>0</u> | | | | Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species <u>100</u> x 1 = <u>100</u> FACW species <u>0</u> x 2 = _____ FAC species <u>0</u> x 3 = _____ FACU species <u>0</u> x 4 = _____ UPL species <u>0</u> x 5 = _____ Column Totals: <u>100</u> (A) <u>100</u> (B) Prevalence Index = B/A = <u>1.00</u> |
| Herb Stratum (Plot size: 5' r) | | | | |
| 1. <u>Salicornia depressa</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ Total Cover: <u>100</u> | <u>100</u> | <u>Yes</u> | <u>OBL</u> | Hydrophytic Vegetation Indicators: 1- Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2- Dominance Test is >50% 3- Prevalence Index is ≤3.0 ¹ 4- Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5- Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. |
| Woody Vine Stratum (Plot Size: 30' r) | | | | |
| 1. _____ 2. _____ Total Cover: <u>0</u> | | | | Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| % Bare Ground in Herb Stratum <u>0</u> % | | | | |

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: SW Oregon Regional Airport Safety Area Improvements City/County: North Bend/Coos Sampling Date: 11/15/2018
 Applicant/Owner: Mead and Hunt Inc. State: Oregon Sampling Point: 6
 Investigator(s): Bieger Section, Township, Range: Section 9, T25S, R13W
 Landform (hillslope, terrace etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 5
 Subregion (LRR): A - Northwest Forests and Coast Lat: 43.422719 Long: -124.240052 Datum: WGS84
 Soil Map Unit Name: 57- Udorthents, level NWI Classification: E2EM1N

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil X _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? (If needed, explain any answers in remarks) Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? Yes X No _____

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---------------------------------|--------------|-------------|--|
| Hydrophytic Vegetation Present? | Yes <u>X</u> | No _____ | Is the Sampled Area within a wetland? |
| Hydric Soil Present? | Yes _____ | No <u>X</u> | |
| Wetland Hydrology Present? | Yes _____ | No <u>X</u> | |
| Yes _____ No <u>X</u> | | | |

Remarks:

VEGETATION - Use scientific names of plants.

| Tree Stratum (Plot size: 30' r) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: | |
|---|------------------|-------------------|------------------|---|--|
| 1. _____ | _____ | _____ | _____ | Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) | |
| 2. _____ | _____ | _____ | _____ | Total Number of Dominant Species Across All Strata: <u>1</u> (B) | |
| 3. _____ | _____ | _____ | _____ | Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B) | |
| 4. _____ | _____ | _____ | _____ | Prevalence Index worksheet: | |
| Total Cover: <u>0</u> | | | | Total % Cover of: _____ Multiply by: | |
| Sapling/Shrub Stratum (Plot size: 30' r) | | | | OBL species <u>85</u> x 1 = <u>85</u> | |
| 1. _____ | _____ | _____ | _____ | FACW species <u>0</u> x 2 = _____ | |
| 2. _____ | _____ | _____ | _____ | FAC species <u>0</u> x 3 = _____ | |
| 3. _____ | _____ | _____ | _____ | FACU species <u>0</u> x 4 = _____ | |
| 4. _____ | _____ | _____ | _____ | UPL species <u>0</u> x 5 = _____ | |
| 5. _____ | _____ | _____ | _____ | Column Totals: <u>85</u> (A) <u>85</u> (B) | |
| Total Cover: <u>0</u> | | | | Prevalence Index = B/A = <u>1.00</u> | |
| Herb Stratum (Plot size: 5' r) | | | | Hydrophytic Vegetation Indicators: | |
| 1. <u>Salicornia depressa</u> | <u>85</u> | <u>Yes</u> | <u>OBL</u> | <u>X</u> 1- Rapid Test for Hydrophytic Vegetation | |
| 2. _____ | _____ | _____ | _____ | 2- Dominance Test is >50% | |
| 3. _____ | _____ | _____ | _____ | 3- Prevalence Index is ≤3.0 ¹ | |
| 4. _____ | _____ | _____ | _____ | 4- Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) | |
| 5. _____ | _____ | _____ | _____ | 5- Wetland Non-Vascular Plants ¹ | |
| 6. _____ | _____ | _____ | _____ | Problematic Hydrophytic Vegetation ¹ (Explain) | |
| 7. _____ | _____ | _____ | _____ | Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic. | |
| 8. _____ | _____ | _____ | _____ | Hydrophytic Vegetation Present? Yes <u>X</u> No _____ | |
| Total Cover: <u>85</u> | | | | | |
| Woody Vine Stratum (Plot Size: 30' r) | | | | | |
| 1. _____ | _____ | _____ | _____ | | |
| 2. _____ | _____ | _____ | _____ | | |
| Total Cover: <u>0</u> | | | | | |
| % Bare Ground in Herb Stratum <u>15</u> % | | | | | |

Remarks:

Appendix C

Ground Level Color Photographs



Photo Point 1 – Emergent Wetland Facing North



Photo Point 2 – Emergent Wetland Facing South



Photo Point 3 – Typical Wetland/ Upland Interface



Photo Point 4 – Wetland /Open Water Interface



Photo Point 5 – Typical Shoreline Condition



Photo Point 6 - Study Area A, Facing West



Photo Point 7 - Study Area C, Facing South



Photo Point 8 – Study Area D, Facing North



Photo Point 9 – Project Area E, Facing East

Appendix D

Charleston Oregon Datum/Climate Information

9432895 NORTH BEND, COOS BAY, OR [Home \(/\)](#) / [Products \(products.html\)](#) / [Datums \(stations.html?type=Datums\)](#) / 9432895 NORTH BEND, COOS BAY, OR [Favorite Stations](#) ▼

Parts of the U.S. Government are closed. However, because the information this site provides is necessary to protect life and property, it will be updated and maintained during the Federal Government shutdown. For critical weather information, please visit www.weather.gov (<https://www.weather.gov>). To learn more, see www.commerce.gov (<https://www.commerce.gov>).

Station Info ▼ [Tides/Water Levels](#) ▼ [Meteorological Obs.](#) [Phys. Oceanography](#)

Datums for 9432895, NORTH BEND, COOS BAY OR

NOTICE: All data values are relative to the MLLW.

Elevations on Mean Lower Low Water

Station: 9432895, NORTH BEND, COOS BAY, OR

Status: Accepted (Jun 28 2004)

Units: Feet

Control Station: 9432780 Charleston, OR

T.M.: 120

Epoch: ([/datum_options.html#NTDE](#)) 1983-2001

Datum: MLLW

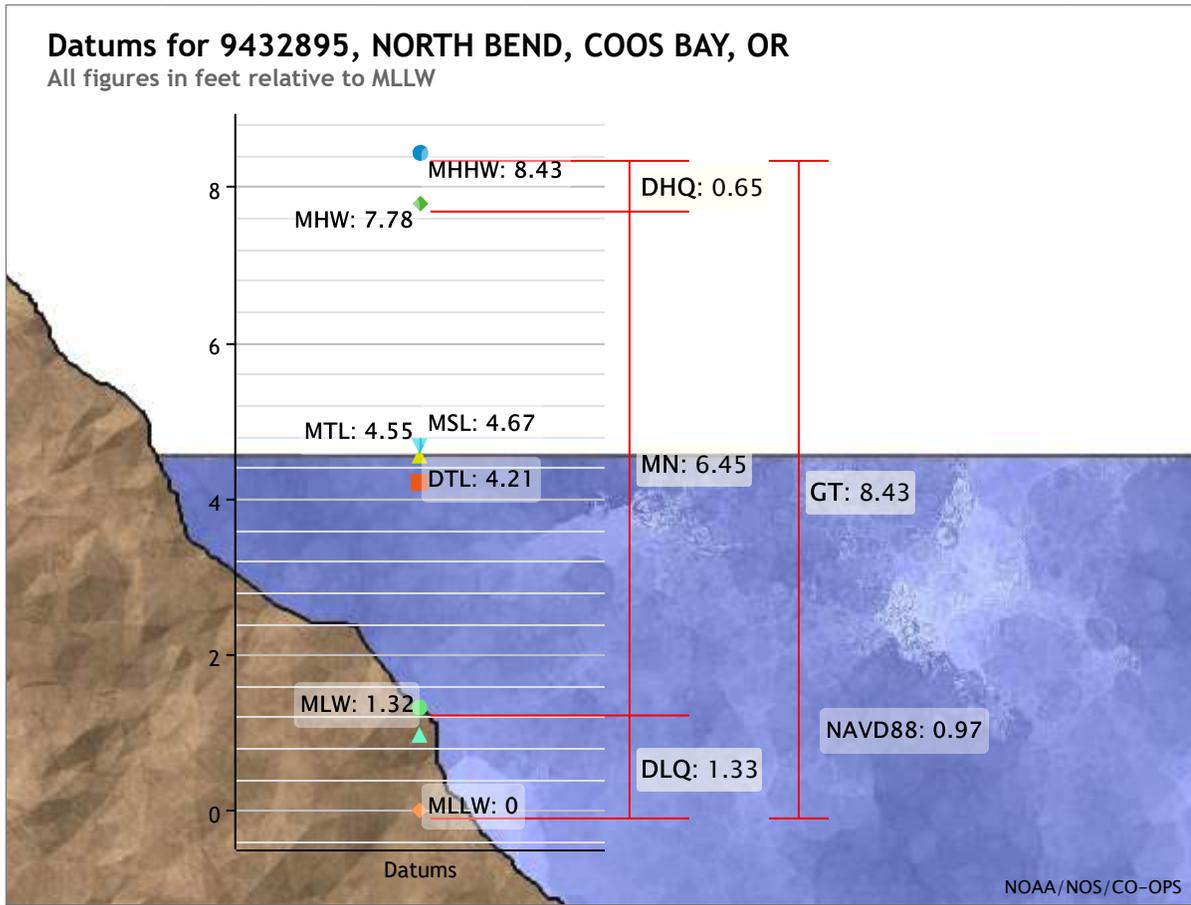
| Datum | Value | Description |
|---|-------|------------------------|
| MHHW (/datum_options.html#MHHW) | 8.43 | Mean Higher-High Water |
| MHW (/datum_options.html#MHW) | 7.78 | Mean High Water |

| Datum | Value | Description | Appendix S |
|--|--------------|--|-------------------|
| MTL (/datum_options.html#MTL) | 4.55 | Mean Tide Level | |
| MSL (/datum_options.html#MSL) | 4.67 | Mean Sea Level | |
| DTL (/datum_options.html#DTL) | 4.21 | Mean Diurnal Tide Level | |
| MLW (/datum_options.html#MLW) | 1.32 | Mean Low Water | |
| MLLW (/datum_options.html#MLLW) | 0.00 | Mean Lower-Low Water | |
| NAVD88 (/datum_options.html) | 0.97 | North American Vertical Datum of 1988 | |
| STND (/datum_options.html#STND) | -8.96 | Station Datum | |
| GT (/datum_options.html#GT) | 8.43 | Great Diurnal Range | |
| MN (/datum_options.html#MN) | 6.45 | Mean Range of Tide | |
| DHQ (/datum_options.html#DHQ) | 0.65 | Mean Diurnal High Water Inequality | |
| DLQ (/datum_options.html#DLQ) | 1.33 | Mean Diurnal Low Water Inequality | |
| HWI (/datum_options.html#HWI) | 8.59 | Greenwich High Water Interval (in hours) | |
| LWI (/datum_options.html#LWI) | 2.14 | Greenwich Low Water Interval (in hours) | |
| Max Tide (/datum_options.html#MAXTIDE) | | Highest Observed Tide | |
| Max Tide Date & Time (/datum_options.html#MAXTIDEDT) | | Highest Observed Tide Date & Time | |
| Min Tide (/datum_options.html#MINTIDE) | | Lowest Observed Tide | |
| Min Tide Date & Time (/datum_options.html#MINTIDEDT) | | Lowest Observed Tide Date & Time | |
| HAT (/datum_options.html#HAT) | | Highest Astronomical Tide | |
| HAT Date & Time | | HAT Date and Time | |
| LAT (/datum_options.html#LAT) | | Lowest Astronomical Tide | |
| LAT Date & Time | | LAT Date and Time | |

Tidal Datum Analysis Periods

09/01/1982 - 09/30/1982

To refer water level heights to NAVD88 (North American Vertical Datum of 1988), apply the values located at National Geodetic Survey (http://www.ngs.noaa.gov/Tidal_Elevation/diagram.xhtml?PID=OA0654&EPOCH=1983-2001).



Showing datums for

9432895 NORTH BEND, CO...

Data Units Feet
 Meters

Epoch Present (1983-2001)
 Superseded (1960-1978)

Submit

Show nearby stations

Products available at 9432895 NORTH BEND, COOS BAY, OR

TIDES/WATER LEVELS

Water Levels

NOAA Tide Predictions

Harmonic Constituents

Sea Level Trends

Datums (</datums.html?id=9432895>)

Bench Mark Sheets (</benchmarks.html?id=9432895>)

Extreme Water Levels

Reports (</reports.html?id=9432895>)

METEOROLOGICAL/OTHER

Meteorological Observations

Water Temp/Conductivity

PORTS®

This station is not a member of PORTS®

OPERATIONAL FORECAST SYSTEMS

This station is not a member of OFS

INFORMATION

Station Home Page (</stationhome.html?id=9432895>)

Data Inventory (</inventory.html?id=9432895>)

Measurement Specifications (</measure.html>)

Explanation of the Preliminary Monthly Climate Data (F6) Product

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - <http://www.ncdc.noaa.gov>.

WFO Monthly/Daily Climate Data

000

CXUS56 KMFR 011000

CF60TH

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: NORTH BEND OR

MONTH: AUGUST

YEAR: 2018

LATITUDE: 43 25 N

LONGITUDE: 124 15 W

| TEMPERATURE IN F: | | | | | :PCPN: | | | SNOW: | | WIND | | | :SUNSHINE: | | | SKY | | :PK WND | | |
|-------------------|-----|-----|-----|-----|--------|-----|------|-------|------|------|-----|-----|------------|------|-----|-----|-----|---------|--|--|
| 1 | 2 | 3 | 4 | 5 | 6A | 6B | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | | |
| | | | | | | | | | | 12Z | AVG | MX | 2MIN | | | | | | | |
| DY | MAX | MIN | AVG | DEP | HDD | CDD | WTR | SNW | DPTH | SPD | SPD | DIR | MIN | PSBL | S-S | WX | SPD | DR | | |
| 1 | 66 | 57 | 62 | 3 | 3 | 0 | T | M | M | 8.5 | 14 | 320 | M | M | 10 | 1 | M | M | | |
| 2 | 67 | 58 | 63 | 4 | 2 | 0 | T | M | M | 7.6 | 15 | 340 | M | M | 7 | 1 | M | M | | |
| 3 | 70 | 53 | 62 | 3 | 3 | 0 | 0.00 | M | M | 10.0 | 21 | 350 | M | M | 2 | 12 | 29 | 350 | | |
| 4 | 65 | 54 | 60 | 1 | 5 | 0 | 0.00 | M | M | 5.5 | 12 | 320 | M | M | 8 | 18 | M | M | | |
| 5 | 63 | 58 | 61 | 2 | 4 | 0 | 0.00 | M | M | 5.3 | 9 | 300 | M | M | 10 | | M | M | | |
| 6 | 67 | 57 | 62 | 3 | 3 | 0 | 0.00 | M | M | 8.7 | 18 | 340 | M | M | 8 | | M | M | | |
| 7 | 67 | 58 | 63 | 4 | 2 | 0 | 0.00 | M | M | 9.6 | 18 | 350 | M | M | 9 | 1 | 25 | 350 | | |
| 8 | 67 | 57 | 62 | 3 | 3 | 0 | 0.00 | M | M | 5.9 | 12 | 320 | M | M | 9 | | M | M | | |
| 9 | 66 | 56 | 61 | 2 | 4 | 0 | 0.00 | M | M | 5.5 | 12 | 320 | M | M | 8 | 128 | M | M | | |
| 10 | 69 | 56 | 63 | 4 | 2 | 0 | 0.00 | M | M | 6.0 | 9 | 260 | M | M | 9 | 1 | M | M | | |
| 11 | 71 | 58 | 65 | 6 | 0 | 0 | 0.00 | M | M | 7.8 | 12 | 350 | M | M | 4 | | M | M | | |
| 12 | 70 | 55 | 63 | 4 | 2 | 0 | T | M | M | 15.5 | 31 | 360 | 0 | 0 | 0 | | 39 | 360 | | |
| 13 | 64 | 54 | 59 | 0 | 6 | 0 | 0.00 | M | M | 6.7 | 14 | 330 | M | M | 7 | 12 | M | M | | |
| 14 | 65 | 58 | 62 | 3 | 3 | 0 | 0.00 | M | M | 4.2 | 8 | 250 | M | M | 10 | 1 | M | M | | |
| 15 | 63 | 56 | 60 | 1 | 5 | 0 | 0.00 | M | M | 4.9 | 9 | 270 | M | M | 10 | 1 | M | M | | |
| 16 | 65 | 56 | 61 | 2 | 4 | 0 | 0.00 | M | M | 9.4 | 17 | 360 | M | M | 8 | 1 | 23 | 350 | | |
| 17 | 67 | 50 | 59 | 0 | 6 | 0 | 0.00 | M | M | 13.6 | 28 | 350 | 0 | 0 | 0 | | 37 | 350 | | |
| 18 | 66 | 50 | 58 | -1 | 7 | 0 | 0.00 | M | M | 13.3 | 27 | 350 | M | M | 3 | 1 | 36 | 350 | | |
| 19 | 67 | 57 | 62 | 3 | 3 | 0 | 0.00 | M | M | 11.3 | 20 | 360 | M | M | 8 | 8 | 24 | 360 | | |
| 20 | 65 | 53 | 59 | 0 | 6 | 0 | T | M | M | 10.0 | 20 | 350 | M | M | 8 | 1 | 23 | 10 | | |
| 21 | 75 | 52 | 64 | 5 | 1 | 0 | T | M | M | 6.1 | 17 | 270 | M | M | 2 | 128 | 20 | 280 | | |
| 22 | 63 | 53 | 58 | -1 | 7 | 0 | 0.00 | M | M | 5.0 | 12 | 250 | M | M | 10 | 1 | M | M | | |
| 23 | 66 | 55 | 61 | 2 | 4 | 0 | 0.00 | M | M | 7.0 | 14 | 330 | M | M | 7 | 18 | 18 | 340 | | |
| 24 | 67 | 51 | 59 | 0 | 6 | 0 | 0.00 | M | M | 11.7 | 22 | 350 | M | M | 1 | 1 | 31 | 350 | | |
| 25 | 67 | 46 | 57 | -2 | 8 | 0 | 0.00 | M | M | 9.5 | 23 | 340 | 0 | 0 | 0 | | 30 | 350 | | |
| 26 | 68 | 54 | 61 | 2 | 4 | 0 | T | M | M | 8.3 | 20 | 350 | M | M | 5 | 1 | 25 | 350 | | |
| 27 | 67 | 54 | 61 | 2 | 4 | 0 | 0.01 | M | M | 14.0 | 23 | 350 | 0 | 0 | 0 | | 37 | 350 | | |
| 28 | 73 | 49 | 61 | 2 | 4 | 0 | 0.00 | M | M | 9.3 | 23 | 350 | 0 | 0 | 0 | | 30 | 350 | | |
| 29 | 62 | 54 | 58 | -1 | 7 | 0 | 0.00 | M | M | 4.4 | 10 | 300 | M | M | 10 | 1 | M | M | | |
| 30 | 61 | 54 | 58 | -1 | 7 | 0 | T | M | M | 5.8 | 12 | 280 | M | M | 10 | 1 | M | M | | |

Appendix S

```

31 65 55 60 1 5 0 0.00 M M 9.3 22 350 M M 5 1 28 350
=====
SM 2064 1688 130 0 0.01 M 259.7 0 188
=====
AV 66.6 54.5 8.4 FASTST 0 0 6 MAX(MPH)
MISC ----> # 31 360 # 39 360
=====

```

NOTES:

LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

```

STATION: NORTH BEND OR
MONTH: AUGUST
YEAR: 2018
LATITUDE: 43 25 N
LONGITUDE: 124 15 W

```

[TEMPERATURE DATA]

[PRECIPITATION DATA]

SYMBOLS USED IN COLUMN 16

```

AVERAGE MONTHLY: 60.5
DPTR FM NORMAL: 1.4
HIGHEST: 75 ON 21
LOWEST: 46 ON 25

```

```

TOTAL FOR MONTH: 0.01
DPTR FM NORMAL: -0.61
GRTST 24HR 0.01 ON 27-27

```

```

SNOW, ICE PELLETS, HAIL
TOTAL MONTH: M
GRTST 24HR M ON M
GRTST DEPTH: M ON M

```

```

1 = FOG OR MIST
2 = FOG REDUCING VISIBILITY
TO 1/4 MILE OR LESS
3 = THUNDER
4 = ICE PELLETS
5 = HAIL
6 = FREEZING RAIN OR DRIZZLE
7 = DUSTSTORM OR SANDSTORM:
VSBY 1/2 MILE OR LESS
8 = SMOKE OR HAZE
9 = BLOWING SNOW
X = TORNADO

```

[NO. OF DAYS WITH]

[WEATHER - DAYS WITH]

```

MAX 32 OR BELOW: 0 0.01 INCH OR MORE: 1
MAX 90 OR ABOVE: 0 0.10 INCH OR MORE: 0
MIN 32 OR BELOW: 0 0.50 INCH OR MORE: 0
MIN 0 OR BELOW: 0 1.00 INCH OR MORE: 0

```

[HDD (BASE 65)]

```

TOTAL THIS MO. 130 CLEAR (SCALE 0-3) 9
DPTR FM NORMAL -52 PTCLDY (SCALE 4-7) 7
TOTAL FM JUL 1 293 CLOUDY (SCALE 8-10) 15
DPTR FM NORMAL -86

```

[CDD (BASE 65)]

```

TOTAL THIS MO. 0
DPTR FM NORMAL -1 [PRESSURE DATA]
TOTAL FM JAN 1 0 HIGHEST SLP 30.26 ON 17
DPTR FM NORMAL -1 LOWEST SLP 29.90 ON 21

```

[REMARKS]

#FINAL-08-18#

Explanation of the Preliminary Monthly Climate Data (F6) Product

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - <http://www.ncdc.noaa.gov>.

WFO Monthly/Daily Climate Data

000

CXUS56 KMFR 011000

CF60TH

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: NORTH BEND OR

MONTH: SEPTEMBER

YEAR: 2018

LATITUDE: 43 25 N

LONGITUDE: 124 15 W

| TEMPERATURE IN F: | | | | | :PCPN: | | | SNOW: | | WIND | | | :SUNSHINE: | | | SKY | | :PK WND | | |
|-------------------|-----|-----|-----|-----|--------|-----|------|-------|------|------|-----|-----|------------|------|-----|-----|-----|---------|--|--|
| 1 | 2 | 3 | 4 | 5 | 6A | 6B | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | | |
| | | | | | | | | | | 12Z | AVG | MX | 2MIN | | | | | | | |
| DY | MAX | MIN | AVG | DEP | HDD | CDD | WTR | SNW | DPTH | SPD | SPD | DIR | MIN | PSBL | S-S | WX | SPD | DR | | |
| 1 | 67 | 48 | 58 | -1 | 7 | 0 | T | M | M | 13.5 | 29 | 360 | M | M | 0 | 12 | 39 | 350 | | |
| 2 | 64 | 49 | 57 | -2 | 8 | 0 | 0.00 | M | M | 15.7 | 29 | 350 | M | M | 0 | | 41 | 10 | | |
| 3 | 66 | 52 | 59 | 0 | 6 | 0 | 0.00 | M | M | 15.1 | 29 | 350 | 0 | 0 | 0 | | 38 | 350 | | |
| 4 | 65 | 49 | 57 | -2 | 8 | 0 | 0.00 | M | M | 14.8 | 27 | 350 | M | M | 0 | 1 | 38 | 350 | | |
| 5 | 60 | 47 | 54 | -4 | 11 | 0 | 0.00 | M | M | 4.6 | 10 | 280 | M | M | 4 | 12 | M | M | | |
| 6 | 65 | 53 | 59 | 1 | 6 | 0 | 0.00 | M | M | 4.9 | 12 | 330 | M | M | 5 | 1 | M | M | | |
| 7 | 65 | 51 | 58 | 0 | 7 | 0 | 0.00 | M | M | 5.4 | 12 | 270 | M | M | 6 | 1 | M | M | | |
| 8 | 68 | 54 | 61 | 3 | 4 | 0 | 0.00 | M | M | 4.9 | 12 | 310 | M | M | 6 | 12 | M | M | | |
| 9 | 68 | 50 | 59 | 1 | 6 | 0 | 0.00 | M | M | 6.0 | 12 | 270 | M | M | 2 | 12 | M | M | | |
| 10 | 67 | 56 | 62 | 4 | 3 | 0 | 0.01 | M | M | 5.4 | 12 | 280 | M | M | 6 | 1 | M | M | | |
| 11 | 67 | 55 | 61 | 3 | 4 | 0 | 0.11 | M | M | 7.1 | 12 | 270 | M | M | 7 | | M | M | | |
| 12 | 67 | 52 | 60 | 2 | 5 | 0 | 0.07 | M | M | 7.4 | 13 | 260 | M | M | 6 | 1 | M | M | | |
| 13 | 68 | 51 | 60 | 2 | 5 | 0 | T | M | M | 8.2 | 16 | 260 | M | M | 7 | 12 | M | M | | |
| 14 | 60 | 49 | 55 | -3 | 10 | 0 | T | M | M | 5.5 | 12 | 290 | M | M | 7 | 128 | M | M | | |
| 15 | 66 | 50 | 58 | 0 | 7 | 0 | T | M | M | 9.1 | 14 | 250 | M | M | 8 | | 20 | 250 | | |
| 16 | 68 | 51 | 60 | 2 | 5 | 0 | 0.03 | M | M | 8.4 | 16 | 230 | M | M | 6 | 1 | 22 | 230 | | |
| 17 | 65 | 47 | 56 | -1 | 9 | 0 | 0.01 | M | M | 10.4 | 24 | 350 | M | M | 2 | 12 | 31 | 350 | | |
| 18 | 64 | 44 | 54 | -3 | 11 | 0 | 0.00 | M | M | 10.2 | 22 | 350 | M | M | 0 | | 31 | 350 | | |
| 19 | 66 | 45 | 56 | -1 | 9 | 0 | 0.00 | M | M | 7.6 | 14 | 340 | M | M | 4 | | M | M | | |
| 20 | 68 | 48 | 58 | 1 | 7 | 0 | T | M | M | 8.7 | 22 | 350 | M | M | 3 | 12 | 28 | 350 | | |
| 21 | 66 | 46 | 56 | -1 | 9 | 0 | T | M | M | 5.3 | 10 | 270 | 0 | 0 | 0 | | M | M | | |
| 22 | 66 | 52 | 59 | 2 | 6 | 0 | 0.17 | M | M | 6.2 | 14 | 340 | M | M | 4 | 1 | M | M | | |
| 23 | 67 | 49 | 58 | 1 | 7 | 0 | T | M | M | 11.3 | 22 | 360 | 0 | 0 | 0 | | 32 | 360 | | |
| 24 | 68 | 45 | 57 | 1 | 8 | 0 | 0.00 | M | M | 11.3 | 24 | 360 | M | M | 0 | 1 | 32 | 350 | | |
| 25 | 71 | 47 | 59 | 3 | 6 | 0 | 0.00 | M | M | 8.1 | 23 | 350 | 0 | 0 | 0 | | 30 | 350 | | |
| 26 | 74 | 46 | 60 | 4 | 5 | 0 | 0.00 | M | M | 8.8 | 24 | 350 | 0 | 0 | 0 | | 30 | 350 | | |
| 27 | 74 | 45 | 60 | 4 | 5 | 0 | 0.00 | M | M | 4.4 | 9 | 270 | M | M | 0 | 1 | M | M | | |
| 28 | 58 | 48 | 53 | -3 | 12 | 0 | T | M | M | 5.8 | 12 | 240 | M | M | 9 | 12 | M | M | | |
| 29 | 69 | 56 | 63 | 7 | 2 | 0 | 0.01 | M | M | 7.3 | 14 | 250 | M | M | 10 | | 24 | 240 | | |
| 30 | 71 | 56 | 64 | 8 | 1 | 0 | 0.09 | M | M | 7.9 | 17 | 220 | M | M | 9 | | 24 | 220 | | |

```

=====
SM 1998 1491      199  0  0.50    M    249.3      0    111
=====
AV 66.6 49.7      8.3 FASTST    0    0    4    MAX (MPH)
                    MISC ----> # 29 360                # 41  10
=====

```

NOTES:

LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

```

STATION:  NORTH BEND OR
MONTH:     SEPTEMBER
YEAR:     2018
LATITUDE:  43 25 N
LONGITUDE: 124 15 W

```

| [TEMPERATURE DATA] | [PRECIPITATION DATA] | SYMBOLS USED IN COLUMN 16 |
|-----------------------|--------------------------|------------------------------|
| AVERAGE MONTHLY: 58.2 | TOTAL FOR MONTH: 0.50 | 1 = FOG OR MIST |
| DPTR FM NORMAL: 0.8 | DPTR FM NORMAL: -1.08 | 2 = FOG REDUCING VISIBILITY |
| HIGHEST: 74 ON 27,26 | GRTST 24HR 0.17 ON 22-22 | TO 1/4 MILE OR LESS |
| LOWEST: 44 ON 18 | | 3 = THUNDER |
| | SNOW, ICE PELLETS, HAIL | 4 = ICE PELLETS |
| | TOTAL MONTH: M | 5 = HAIL |
| | GRTST 24HR M ON M | 6 = FREEZING RAIN OR DRIZZLE |
| | GRTST DEPTH: M ON M | 7 = DUSTSTORM OR SANDSTORM: |
| | | VSBY 1/2 MILE OR LESS |
| | | 8 = SMOKE OR HAZE |
| | | 9 = BLOWING SNOW |
| | | X = TORNADO |
| [NO. OF DAYS WITH] | [WEATHER - DAYS WITH] | |
| MAX 32 OR BELOW: 0 | 0.01 INCH OR MORE: 8 | |
| MAX 90 OR ABOVE: 0 | 0.10 INCH OR MORE: 2 | |
| MIN 32 OR BELOW: 0 | 0.50 INCH OR MORE: 0 | |
| MIN 0 OR BELOW: 0 | 1.00 INCH OR MORE: 0 | |

[HDD (BASE 65)]

| | | | |
|----------------|------|---------------------|----|
| TOTAL THIS MO. | 199 | CLEAR (SCALE 0-3) | 14 |
| DPTR FM NORMAL | -30 | PTCLDY (SCALE 4-7) | 12 |
| TOTAL FM JUL 1 | 492 | CLOUDY (SCALE 8-10) | 4 |
| DPTR FM NORMAL | -116 | | |

[CDD (BASE 65)]

| | | | |
|----------------|----|-------------------------|--|
| TOTAL THIS MO. | 0 | | |
| DPTR FM NORMAL | -1 | [PRESSURE DATA] | |
| TOTAL FM JAN 1 | 0 | HIGHEST SLP 30.20 ON 24 | |
| DPTR FM NORMAL | -2 | LOWEST SLP 29.76 ON 29 | |

[REMARKS]

#FINAL-09-18#

Explanation of the Preliminary Monthly Climate Data (F6) Product

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - <http://www.ncdc.noaa.gov>.

WFO Monthly/Daily Climate Data

000

CXUS56 KMFR 011000

CF60TH

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: NORTH BEND OR

MONTH: OCTOBER

YEAR: 2018

LATITUDE: 43 25 N

LONGITUDE: 124 15 W

| TEMPERATURE IN F: | | | | | :PCPN: | | | SNOW: | WIND | | | :SUNSHINE: | | | SKY | :PK WND | | |
|-------------------|-----|-----|-----|-----|--------|-----|------|-------|------|------|-----|------------|-----|------|-----|---------|-----|-----|
| 1 | 2 | 3 | 4 | 5 | 6A | 6B | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| ===== | | | | | | | | | | | | | | | | | | |
| 12Z AVG MX 2MIN | | | | | | | | | | | | | | | | | | |
| DY | MAX | MIN | AVG | DEP | HDD | CDD | WTR | SNW | DPTH | SPD | SPD | DIR | MIN | PSBL | S-S | WX | SPD | DR |
| ===== | | | | | | | | | | | | | | | | | | |
| 1 | 64 | 57 | 61 | 6 | 4 | 0 | 0.01 | M | M | 2.5 | 6 | 250 | 0 | 0 | 0 | | M | M |
| 2 | 66 | 48 | 57 | 2 | 8 | 0 | 0.00 | M | M | 6.5 | 20 | 350 | M | M | 3 | 1 | 22 | 350 |
| 3 | 62 | 40 | 51 | -4 | 14 | 0 | 0.00 | M | M | 6.0 | 16 | 350 | M | M | 0 | 1 | M | M |
| 4 | 63 | 45 | 54 | -1 | 11 | 0 | 0.00 | M | M | 5.7 | 10 | 320 | 0 | 0 | 0 | | M | M |
| 5 | M | M | M | M | M | M | 0.78 | M | M | 7.8 | 12 | 210 | M | M | 8 | 1 | M | M |
| 6 | 61 | 48 | 55 | 0 | 10 | 0 | 0.12 | M | M | 9.1 | 15 | 350 | M | M | 2 | 1 | 22 | 350 |
| 7 | 61 | 46 | 54 | -1 | 11 | 0 | 0.02 | M | M | 4.0 | 8 | 140 | M | M | 10 | 12 | M | M |
| 8 | 55 | 55 | 55 | 1 | 10 | 0 | 0.04 | M | M | 1.2 | 6 | 310 | M | M | 9 | 1 | M | M |
| 9 | M | M | M | M | M | M | 0.01 | M | M | 10.9 | 16 | 360 | M | M | 3 | 1 | M | M |
| 10 | M | M | M | M | M | M | 0.00 | M | M | 9.2 | 21 | 340 | M | M | 1 | 12 | M | M |
| 11 | 70 | M | M | M | M | M | M | M | M | 6.9 | 17 | 350 | 0 | 0 | 0 | | M | M |
| 12 | 67 | 42 | 55 | 1 | 10 | 0 | M | M | M | 9.4 | 25 | 350 | M | M | 1 | 1 | 32 | 350 |
| 13 | 74 | 46 | 60 | 6 | 5 | 0 | 0.00 | M | M | 6.3 | 12 | 10 | M | M | 4 | 12 | M | M |
| 14 | 78 | 45 | 62 | 8 | 3 | 0 | 0.00 | M | M | 9.1 | 17 | 80 | M | M | 0 | | 24 | 80 |
| 15 | 74 | 46 | 60 | 6 | 5 | 0 | 0.00 | M | M | 6.7 | 10 | 130 | 0 | 0 | 0 | | M | M |
| 16 | 62 | 41 | 52 | -2 | 13 | 0 | M | M | M | 6.6 | 12 | 260 | M | M | 0 | 1 | M | M |
| 17 | 59 | 41 | 50 | -3 | 15 | 0 | M | M | M | 5.6 | 12 | 270 | M | M | 9 | 1 | M | M |
| 18 | 54 | 48 | 51 | -2 | 14 | 0 | M | M | M | 6.0 | 15 | 340 | M | M | 10 | 1 | M | M |
| 19 | 54 | 47 | 51 | -2 | 14 | 0 | M | M | M | 6.1 | 16 | 360 | M | M | 10 | 1 | M | M |
| 20 | 62 | 43 | 53 | 0 | 12 | 0 | M | M | M | 7.2 | 22 | 340 | M | M | 4 | 12 | 27 | 350 |
| 21 | 52 | 46 | 49 | -4 | 16 | 0 | M | M | M | 3.9 | 8 | 360 | M | M | 10 | 12 | M | M |
| 22 | 53 | 47 | 50 | -3 | 15 | 0 | M | M | M | 4.8 | 9 | 170 | M | M | 10 | 1 | M | M |
| 23 | 55 | 48 | 52 | -1 | 13 | 0 | 0.33 | M | M | 5.8 | 10 | 150 | M | M | 8 | 1 | M | M |
| 24 | M | M | M | M | M | M | 0.01 | M | M | 5.5 | 9 | 250 | M | M | 7 | 12 | M | M |
| 25 | 64 | 49 | 57 | 5 | 8 | 0 | T | M | M | 7.0 | 10 | 200 | M | M | 5 | | 23 | 160 |
| 26 | 63 | 55 | 59 | 7 | 6 | 0 | 0.34 | M | M | 6.9 | 13 | 210 | M | M | 10 | 12 | 20 | 210 |
| 27 | 69 | 53 | 61 | 9 | 4 | 0 | M | M | M | 9.3 | 20 | 360 | M | M | 0 | | 33 | 220 |
| 28 | 64 | 49 | 57 | 5 | 8 | 0 | 0.39 | M | M | 10.1 | 14 | 220 | M | M | 6 | 13 | 23 | 220 |
| 29 | 61 | 45 | 53 | 1 | 12 | 0 | T | M | M | 7.2 | 13 | 250 | M | M | 4 | | M | M |
| 30 | 60 | 42 | 51 | -1 | 14 | 0 | 0.01 | M | M | 5.4 | 9 | 290 | M | M | 2 | 1 | M | M |

Appendix S

```

31 60 52 56 5 9 0 0.43 M M 7.7 13 230 M M 10 1 20 230
=====
SM 1687 1224 264 0 2.49 M 206.4 0 146
=====
AV 62.5 47.1 6.7 FASTST 0 0 5 MAX(MPH)
MISC ----> # 25 350 # 33 220
=====

```

NOTES:

LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

```

STATION: NORTH BEND OR
MONTH: OCTOBER
YEAR: 2018
LATITUDE: 43 25 N
LONGITUDE: 124 15 W

```

[TEMPERATURE DATA]

[PRECIPITATION DATA]

SYMBOLS USED IN COLUMN 16

```

AVERAGE MONTHLY: 54.8
DPTR FM NORMAL: 1.4
HIGHEST: 78 ON 14
LOWEST: 40 ON 3

```

```

TOTAL FOR MONTH: 2.49
DPTR FM NORMAL: -2.24
GRTST 24HR 0.78 ON 5- 5

```

```

SNOW, ICE PELLETS, HAIL
TOTAL MONTH: M
GRTST 24HR M ON M
GRTST DEPTH: M ON M

```

```

1 = FOG OR MIST
2 = FOG REDUCING VISIBILITY
TO 1/4 MILE OR LESS
3 = THUNDER
4 = ICE PELLETS
5 = HAIL
6 = FREEZING RAIN OR DRIZZLE
7 = DUSTSTORM OR SANDSTORM:
VSBY 1/2 MILE OR LESS
8 = SMOKE OR HAZE
9 = BLOWING SNOW
X = TORNADO

```

[NO. OF DAYS WITH]

[WEATHER - DAYS WITH]

```

MAX 32 OR BELOW: 0
MAX 90 OR ABOVE: 0
MIN 32 OR BELOW: 0
MIN 0 OR BELOW: 0

```

```

0.01 INCH OR MORE: 12
0.10 INCH OR MORE: 6
0.50 INCH OR MORE: 1
1.00 INCH OR MORE: 0

```

[HDD (BASE 65)]

```

TOTAL THIS MO. 264
DPTR FM NORMAL -94
TOTAL FM JUL 1 756
DPTR FM NORMAL -210

```

```

CLEAR (SCALE 0-3) 14
PTCLDY (SCALE 4-7) 8
CLOUDY (SCALE 8-10) 9

```

[CDD (BASE 65)]

```

TOTAL THIS MO. 0
DPTR FM NORMAL 0
TOTAL FM JAN 1 0
DPTR FM NORMAL -2

```

[PRESSURE DATA]

```

HIGHEST SLP 30.37 ON 30
LOWEST SLP 29.86 ON 27

```

[REMARKS]

#FINAL-10-18#

Explanation of the Preliminary Monthly Climate Data (F6) Product

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - <http://www.ncdc.noaa.gov>.

WFO Monthly/Daily Climate Data

000

CXUS56 KMFR 011000

CF60TH

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: NORTH BEND OR

MONTH: NOVEMBER

YEAR: 2018

LATITUDE: 43 25 N

LONGITUDE: 124 15 W

| TEMPERATURE IN F: | | | | | :PCPN: | | | SNOW: | | WIND | | | :SUNSHINE: | | | SKY | | :PK WND | | |
|-------------------|-----|-----|-----|-----|--------|-----|------|-------|------|------|-----|-----|------------|------|-----|-----|-----|---------|--|--|
| 1 | 2 | 3 | 4 | 5 | 6A | 6B | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | | |
| | | | | | | | | | | 12Z | AVG | MX | 2MIN | | | | | | | |
| DY | MAX | MIN | AVG | DEP | HDD | CDD | WTR | SNW | DPTH | SPD | SPD | DIR | MIN | PSBL | S-S | WX | SPD | DR | | |
| 1 | 60 | 56 | 58 | 7 | 7 | 0 | 0.11 | M | M | 3.6 | 9 | 280 | M | M | 10 | 12 | M | M | | |
| 2 | 61 | 49 | 55 | 4 | 10 | 0 | 0.17 | M | M | 6.5 | 15 | 240 | M | M | 9 | 12 | 20 | 240 | | |
| 3 | 59 | 46 | 53 | 2 | 12 | 0 | 0.01 | M | M | 3.3 | 9 | 300 | M | M | 4 | 1 | M | M | | |
| 4 | 60 | 46 | 53 | 2 | 12 | 0 | 0.36 | M | M | 8.3 | 17 | 240 | M | M | 7 | 12 | M | M | | |
| 5 | 60 | 47 | 54 | 3 | 11 | 0 | T | M | M | 6.3 | 9 | 140 | M | M | 7 | 1 | M | M | | |
| 6 | 59 | 42 | 51 | 1 | 14 | 0 | T | M | M | 7.6 | 15 | 350 | M | M | 4 | 12 | M | M | | |
| 7 | 59 | 39 | 49 | -1 | 16 | 0 | T | M | M | 4.8 | 14 | 350 | M | M | 3 | 12 | M | M | | |
| 8 | 63 | 34 | 49 | -1 | 16 | 0 | T | M | M | 1.8 | 7 | 99 | M | M | 1 | 1 | M | M | | |
| 9 | 60 | 37 | 49 | -1 | 16 | 0 | 0.00 | M | M | 5.7 | 18 | 340 | 0 | 0 | 0 | | M | M | | |
| 10 | 57 | M | M | M | M | M | 0.00 | M | M | 6.2 | 13 | 10 | 0 | 0 | 0 | | M | M | | |
| 11 | 67 | 37 | 52 | 2 | 13 | 0 | 0.00 | M | M | 8.7 | 17 | 100 | M | M | 0 | | 16 | 90 | | |
| 12 | 67 | 43 | 55 | 6 | 10 | 0 | 0.00 | M | M | 6.1 | 10 | 140 | 0 | 0 | 0 | | M | M | | |
| 13 | 60 | 39 | 50 | 1 | 15 | 0 | 0.00 | M | M | 4.4 | 10 | 130 | M | M | 0 | | M | M | | |
| 14 | 54 | 40 | 47 | -2 | 18 | 0 | T | M | M | 5.6 | 12 | 130 | M | M | 6 | 128 | M | M | | |
| 15 | 60 | 39 | 50 | 1 | 15 | 0 | T | M | M | 4.9 | 18 | 350 | M | M | 3 | 12 | M | M | | |
| 16 | 61 | 38 | 50 | 1 | 15 | 0 | 0.00 | M | M | 4.1 | 14 | 350 | M | M | 0 | 12 | M | M | | |
| 17 | 64 | 39 | 52 | 4 | 13 | 0 | T | M | M | 3.9 | 8 | 250 | M | M | 2 | 12 | M | M | | |
| 18 | 47 | 39 | 43 | -5 | 22 | 0 | T | M | M | 3.3 | 8 | 130 | M | M | 10 | 12 | M | M | | |
| 19 | 50 | 40 | 45 | -3 | 20 | 0 | T | M | M | 4.2 | 9 | 120 | M | M | 7 | 12 | M | M | | |
| 20 | 60 | 37 | 49 | 1 | 16 | 0 | 0.00 | M | M | 5.6 | 10 | 140 | M | M | 1 | 18 | M | M | | |
| 21 | 54 | 49 | 52 | 4 | 13 | 0 | 1.40 | M | M | 9.1 | 16 | 140 | M | M | 9 | 18 | M | M | | |
| 22 | 53 | 47 | 50 | 2 | 15 | 0 | 1.33 | M | M | 10.4 | 21 | 150 | M | M | M | | 35 | 210 | | |
| 23 | 56 | 48 | 52 | 5 | 13 | 0 | 0.19 | M | M | 8.9 | 14 | 220 | M | M | 10 | 1 | 21 | 190 | | |
| 24 | 55 | 42 | 49 | 2 | 16 | 0 | T | M | M | 3.7 | 8 | 140 | M | M | 4 | 18 | M | M | | |
| 25 | 56 | 42 | 49 | 2 | 16 | 0 | 0.01 | M | M | 6.3 | 9 | 130 | 0 | 0 | 0 | | M | M | | |
| 26 | 63 | 49 | 56 | 9 | 9 | 0 | 0.05 | M | M | 9.8 | 16 | 160 | M | M | 4 | | 22 | 190 | | |
| 27 | 60 | 54 | 57 | 10 | 8 | 0 | 0.92 | M | M | 12.5 | 24 | 190 | 0 | 0 | 0 | | 35 | 180 | | |
| 28 | 57 | 47 | 52 | 5 | 13 | 0 | 0.28 | M | M | 5.2 | 10 | 150 | M | M | 9 | 1 | M | M | | |
| 29 | 52 | 45 | 49 | 3 | 16 | 0 | 0.21 | M | M | 4.6 | 14 | 340 | M | M | 9 | | M | M | | |
| 30 | 52 | 43 | 48 | 2 | 17 | 0 | 0.88 | M | M | 7.2 | 9 | 160 | M | M | 6 | 13 | M | M | | |

```

=====
SM 1746 1253      407  0  5.92   M   182.6           0   125
=====
AV 58.2 43.2                6.1 FASTST   0   0   4   MAX (MPH)
                        MISC ----> # 24 190                # 35 210
=====

```

NOTES:

LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

```

STATION:  NORTH BEND OR
MONTH:     NOVEMBER
YEAR:      2018
LATITUDE:  43 25 N
LONGITUDE: 124 15 W

```

```

[TEMPERATURE DATA]      [PRECIPITATION DATA]      SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 50.7    TOTAL FOR MONTH: 5.92      1 = FOG OR MIST
DPTR FM NORMAL: 1.9      DPTR FM NORMAL: -4.31     2 = FOG REDUCING VISIBILITY
HIGHEST: 67 ON 12,11    GRTST 24HR 1.40 ON 21-21  TO 1/4 MILE OR LESS
LOWEST: 34 ON 8

                                SNOW, ICE PELLETS, HAIL
                                TOTAL MONTH: M
                                GRTST 24HR M ON M
                                GRTST DEPTH: M ON M
                                3 = THUNDER
                                4 = ICE PELLETS
                                5 = HAIL
                                6 = FREEZING RAIN OR DRIZZLE
                                7 = DUSTSTORM OR SANDSTORM:
                                  VSBY 1/2 MILE OR LESS
                                8 = SMOKE OR HAZE
                                9 = BLOWING SNOW
                                X = TORNADO

[NO. OF DAYS WITH]      [WEATHER - DAYS WITH]

MAX 32 OR BELOW: 0      0.01 INCH OR MORE: 13
MAX 90 OR ABOVE: 0      0.10 INCH OR MORE: 10
MIN 32 OR BELOW: 0      0.50 INCH OR MORE: 4
MIN 0 OR BELOW: 0      1.00 INCH OR MORE: 2

[HDD (BASE 65) ]
TOTAL THIS MO. 407      CLEAR (SCALE 0-3) 12
DPTR FM NORMAL -79      PTCLDY (SCALE 4-7) 10
TOTAL FM JUL 1 1163     CLOUDY (SCALE 8-10) 7
DPTR FM NORMAL -289

[CDD (BASE 65) ]
TOTAL THIS MO. 0
DPTR FM NORMAL 0      [PRESSURE DATA]
TOTAL FM JAN 1 0      HIGHEST SLP 30.44 ON 14
DPTR FM NORMAL -2     LOWEST SLP 29.44 ON 29

[REMARKS]
#FINAL-11-18#

```

WETS Table

| WETS Station: NORTH BEND SOUTHWEST OREGON REGIONAL AP, OR | | | | | | | | |
|---|--------------|--------------|---------------|------------|-----------------------------|-----------------------------|-------------------------------------|--------------|
| Requested years: 1981 - 2010 | | | | | | | | |
| Month | Avg Max Temp | Avg Min Temp | Avg Mean Temp | Avg Precip | 30% chance precip less than | 30% chance precip more than | Avg number days precip 0.10 or more | Avg Snowfall |
| Jan | 51.5 | 40.2 | 45.9 | 10.19 | 6.74 | 12.22 | 16 | 0.0 |
| Feb | 52.7 | 40.2 | 46.5 | 7.59 | 5.18 | 8.97 | 13 | 0.3 |
| Mar | 53.8 | 41.5 | 47.7 | 7.83 | 5.86 | 9.16 | 15 | 0.0 |
| Apr | 55.3 | 43.1 | 49.2 | 5.17 | 3.60 | 6.14 | 12 | 0.0 |
| May | 58.9 | 47.0 | 53.0 | 3.39 | 1.93 | 4.13 | 8 | 0.0 |
| Jun | 61.7 | 50.5 | 56.1 | 1.95 | 1.05 | 2.37 | 5 | 0.0 |
| Jul | 64.5 | 52.8 | 58.7 | 0.50 | 0.15 | 0.56 | 2 | 0.0 |
| Aug | 65.4 | 52.9 | 59.2 | 0.62 | 0.20 | 0.69 | 1 | 0.0 |
| Sep | 64.8 | 50.0 | 57.4 | 1.58 | 0.42 | 1.84 | 4 | 0.0 |
| Oct | 60.9 | 46.0 | 53.5 | 4.73 | 2.59 | 5.77 | 8 | 0.0 |
| Nov | 54.9 | 42.7 | 48.8 | 10.23 | 7.08 | 12.03 | 16 | 0.0 |
| Dec | 51.0 | 39.7 | 45.4 | 11.13 | 7.55 | 13.29 | 16 | 0.1 |
| Annual: | | | | | 57.69 | 70.62 | | |
| Average | 58.0 | 45.6 | 51.8 | - | - | - | - | - |
| Total | - | - | - | 64.91 | | | 116 | 0.4 |

GROWING SEASON DATES

| | | | |
|---------------------------|----------------|----------------|-------------------------|
| Years with missing data: | 24 deg = 0 | 28 deg = 0 | 32 deg = 0 |
| Years with no occurrence: | 24 deg = 30 | 28 deg = 17 | 32 deg = 0 |
| Data years used: | 24 deg = 30 | 28 deg = 30 | 32 deg = 30 |
| Probability | 24 F or higher | 28 F or higher | 32 F or higher |
| 50 percent * | No occurrence | No occurrence | 2/24 to 12/6: 285 days |
| 70 percent * | No occurrence | No occurrence | 2/13 to 12/17: 307 days |

* Percent chance of the growing season occurring between the Beginning and Ending dates.

| STATS TABLE - total precipitation (inches) | | | | | | | | | | | | | |
|--|-------|--------|-------|-------|-------|------|------|------|-------|------|-------|-------|-------|
| Yr | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annl |
| 1902 | 5.12 | 15.59 | 11.95 | 6.41 | 3.67 | 1.14 | 1.43 | 0.00 | 0.85 | 2.67 | 11.97 | 16.53 | 77.33 |
| 1903 | 15.56 | 2.27 | 7.58 | 3.73 | 2.03 | 1.10 | 0.57 | 0.49 | 0.74 | 1.94 | 17.07 | 5.03 | 58.11 |
| 1904 | 10.43 | 18.34 | 19.76 | 3.73 | 1.10 | 0.86 | 1.29 | 0.06 | 0.38 | 5.72 | 7.03 | 14.14 | 82.84 |
| 1905 | M6.89 | 4.12 | 10.17 | 1.88 | 2.86 | 1.26 | 0.09 | 0.00 | 1.48 | 5.91 | 6.00 | 7.94 | 48.60 |
| 1906 | M7.44 | M10.04 | M5.87 | 2.90 | 7.86 | 5.58 | 0.06 | 0.11 | 3.00 | 2.68 | 9.90 | 10.19 | 65.63 |
| 1907 | 13.45 | 11.76 | 8.54 | 7.66 | 3.91 | 3.22 | 0.10 | 0.69 | M2.43 | 2.42 | M6.70 | 17.41 | 78.29 |
| 1908 | 6.97 | 6.81 | 5.48 | M3.08 | | 1.96 | 0.06 | | | | | | 24.36 |
| 1909 | | | M2.40 | M1.43 | M3.69 | | 1.39 | 0.17 | 1. | 8. | 17. | 8.92 | 44. |

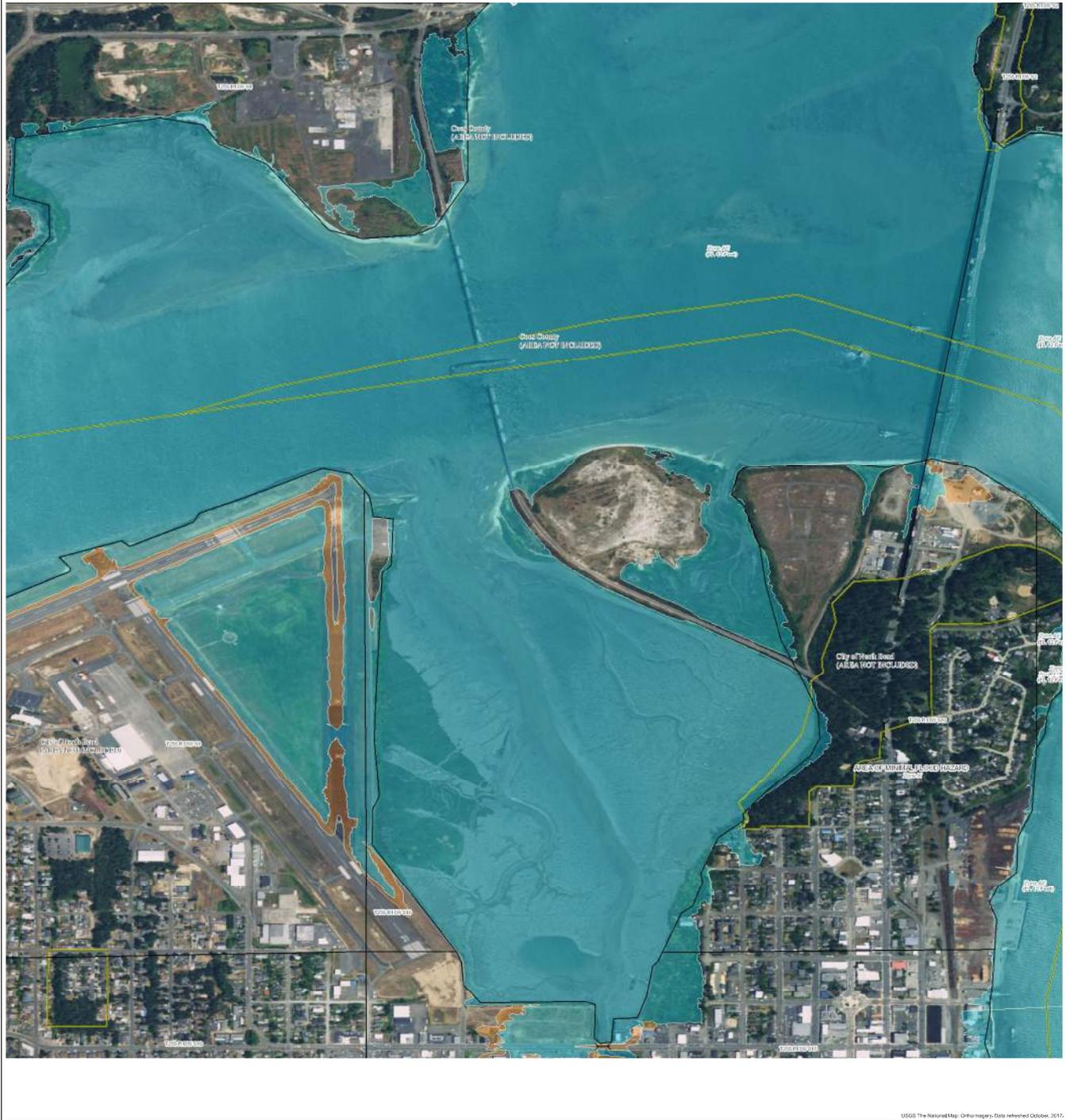
Appendix E

Literature Citations

REFERENCES

- Adamus, P.R. and D. Field. 2001. Guidebook for Hydrogeomorphic (HGM)-based Assess. of Oregon Wetland and Riparian Sites. I. Willamette Valley Ecoregion, Riverine Impounding and Slope/Flats Subclasses. Vol. IA: Assess. Methods. Oregon Division of State Lands, Salem, OR.
- Cowardin, L. M., C. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. FWS/OBS-78/31. US Department of the Interior, Fish and Wildlife Service, Office of Biological Services, Washington, DC.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. US Department of the Army, Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi.
- Krug, Tyler. 2018. Telephone conversation with Tyler Krug, US Army Corps of Engineers Project Manager, Coos County. January 6, 2019.
- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List: 2016 wetland ratings*. Phytoneuron 2016-30: 1–17. Published 28 April 2016. ISSN 2153 733X.
- NRCS. (Natural Resources Conservation Service). US Department of Agriculture. 2018. WETS data for the North Bend Southwest Oregon Regional Airport, OR. Available online at <http://agacis.rcc-acis.org/>. Accessed December 31, 2018.
- NWS. (National Weather Service). 2018. Precipitation data for the North Bend Southwest Airport Oregon Regional Airport station. Available online at [me](#). Accessed December 31, 2018.
- US Army Corps of Engineers. 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*. ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS. U.S. Army Corps of Engineer Research and Development Center.
- USFWS. (US Fish and Wildlife Service). 2018. Publication date 1977 to present. National Wetlands Inventory website. US Department of the Interior, Fish and Wildlife Service, Washington, DC. Available at <https://www.fws.gov/wetlands/data/Mapper.html>. Accessed December 3, 2018.
- NOA Tide information:
<https://tidesandcurrents.noaa.gov/datums.html?units=0&epoch=0&id=9432780&name=Charleston&state=OR>

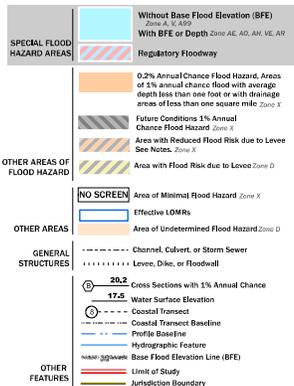
Appendix T
FEMA FIRM No. 41011C0186E



USGS The NationalMap: Orthorectified Data, retrieved October, 2017.
43°29'15.967"

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT



NOTES TO USERS

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For community and countywide map data refer to the Flood Hazard Study Report for this jurisdiction. To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-368-5858.

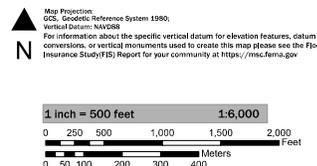
Base map information shown on this FIRM was provided in digital format by USDA, Farm Service Agency (FSA). This information was derived from NAD83 dated April 11, 2016.

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SCALE



NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP
COOS COUNTY, OREGON
AND INCORPORATED AREAS
PANEL 186 OF 1075

Panel Contains:

| COMMUNITY | NUMBER | PANEL |
|--|--------|-------|
| CONFEDERATED TRIBES OF COOS LOWER UMPQUA AND OREGON CITY OF NORTH BEND | 440048 | 0186 |
| OREGON COOS COUNTY | 410048 | 0186 |

MAP NUMBER
41011C0186E
EFFECTIVE DATE
03/17/2014

Appendix U
Water Resources Report

Water Resources Report



Environmental Assessment Runway Safety Area Improvements (Runway 4-22)

Report prepared by



www.meadhunt.com

August 5, 2019

Mead & Hunt Project No. 1417700-171679.01

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1 PROJECT SCOPE

1.1 Project Description

The Southwest Oregon Regional Airport (OTH, Airport, or Sponsor) is a commercial service airport located on the southern coast of Oregon within the City of North Bend. The location of the Airport is displayed in **Figure 1 – Vicinity Map**. The Airport’s primary runway (Runway 4-22) is 5,980 feet long by 150 feet wide. Currently, the Runway Safety Area (RSA) for Runway 4-22 does not meet the design standards for C-III airports as established by the FAA. FAA Advisory Circular 150/5300-13A, *Airport Design*, provides required airport safety area guidance and defines an RSA as a “surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overrun, or excursion from the runway.”

At OTH, the FAA requires the RSA to be 500 feet wide, centered on the runway centerline, and extend 1,000 feet beyond each end of the runway. The existing Runway 22 RSA does not meet these requirements. The Airport completed an Airport Master Plan in 2013 that identified the need to correct the RSA for Runway 4-22. The FAA’s Seattle Airport District Office (ADO) concurred with the findings of the Master Plan and directed OTH to complete an Environmental Assessment (EA).

The Airport is also contemplating three additional projects that will be included in the EA: elimination of direct taxiway connections from the apron to the runway, reconstruction of general aviation apron pavement, and replacement of the Aircraft Rescue and Fire Fighting (ARFF) building.

The Sponsor’s proposed action to be evaluated in the EA includes:

- Correct Runway 4-22 RSA to meet design standards for C-III aircraft
- Remove taxiway connectors to enhance safety
- Reconstruct main general aviation apron
- Demolish and reconstruct the ARFF building
- Install maintenance improvements to the Medium Intensity Approach Lighting System (MALSR)
- Relocation of the glide slope instrumentation 150-feet from Centerline 4-22.

The proposed projects are displayed in **Figure 2 – Proposed Project**.

1.2 Purpose of Report

OTH is surrounded by the open waters of Coos Bay, and the Airport’s stormwater infrastructure discharges directly to this waterway. The existing drainage at the Airport is displayed in **Figure 3 – Existing Drainage**. This report summarizes the Water Resources considerations associated with the EA, including a description of the surface waters and wetlands, floodplains, and drainage infrastructure related to the existing conditions and potential impacts as a result of the proposed actions.

1.3 Design Codes and References

The following design codes and references have been considered for this project.

- Federal Aviation Administration (FAA), AC 150/5300-13A, *Airport Design, Change 1*, 02/26/2014
- FAA, AC 150/5320-5D, *Surface Drainage Design*, 8/15/2013
- FAA, AC 150/5200-33B, Hazardous Wildlife Attractants On Or Near Airports, 8/28/2007
- Oregon Revised Statutes, ORS 196.795-990, *Oregon's Removal-Fill Law*, 2017
- Oregon Department of Environmental Quality (DEQ), *1200-C Construction Stormwater General Permit*, December 15, 2015
- Oregon Department of Environmental Quality (DEQ), *1200-Z Industrial Stormwater General Permit*, August 1, 2017
- City of North Bend, Title 18 Zoning, Revised October 2007
- Southwest Regional Airport, 1200-Z Permit Submittal, *Storm Water Pollution Control Plan*, January 27, 2009
- PBS, Wetland Delineation Report – SW Oregon Regional Airport Safety Improvements, February 15, 2019
- Code of Federal Regulations (CFR), Title 44: Emergency Management and Assistance, § 60.3 - *Flood Plain Management Criteria for Flood-Prone Areas*, Revised October 26, 1976
- Code of Federal Regulations (CFR), Title 44: Emergency Management and Assistance, § 60.6 – *Variances and Exceptions*, Revised August 22, 2016
- Code of Federal Regulations (CFR), Title 14: Aeronautics and Space, § 139.319 - *Aircraft rescue and firefighting: Operational requirements*, June 4, 2004
- City of North Bend Ordinance No. 2027, Issued November 27, 2018
- City of North Bend Ordinance No. 2028, Issued November 19, 2018
- Washington State Department of Transportation (WSDOT), *Aviation Stormwater Design Manual: Managing Wildlife Hazards Near Airports*, December 2008.

1.4 Regulatory Considerations

1.4.1 Surface Water and Wetlands

The Clean Water Act (CWA) has been established to protect streams, lakes, rivers, wetlands, or other waters that qualify as “Waters of the United States” and are regulated by the U.S. Army Corps of Engineers (USACE). Wetlands and waterways have been defined by the USACE and the U.S. Environmental Protection Agency (EPA), pursuant to Section 404 of the CWA. Wetlands are also defined by Executive Order 11990: *Protection of Wetlands*. Wetlands are a subset of Waters of the United States and receive protection under Section 404 of the CWA. Surface waters and wetlands within Oregon are further regulated by Oregon’s Removal-Fill Law administered by the Oregon Department of State Lands (DSL). The USACE and DSL use a joint permit application for proposed removal-fill activities; however, each agency independently reviews the application and issues its own permit. Storm water discharges to surface waters are regulated by the DEQ General Permits, which are further described below.

1.4.2 FEMA Floodplains and Local Floodplain Ordinance

According to Executive Order 11988 (Floodplains), Executive Order 13690 (Federal Flood Risk Management), and the US Department of Transportation Order 5650.2 (Floodplain Management and Protection), development actions must avoid the floodplain if a practical alternative exists. If no practical alternative exists, actions in the floodplain should be designed to minimize adverse impact to the floodplain’s natural and beneficial values. Improvements should also minimize the potential risks for flood-related property loss and impacts on human safety, health, and welfare.

44 CFR § 60.3, c. states the following applicable regulatory requirements for construction projects in flood-prone areas where the Administrator has provided a notice of final flood elevations for one or more special flood hazard areas on the community’s Flood Insurance Rate Map (FIRM) but has not identified a regulatory floodway or a coastal high hazard area:

- Notify adjacent communities and the State Coordinating Office prior to any alteration or relocation of a watercourse;
- Assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained; and
- Demonstrate that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood by more than one foot.

The City of North Bend has issued Ordinance No. 2027, which repeals and replaces the text of North Bend City Code Title 18, Chapter 18.48. In Ordinance No. 2027, Section 18.48.140 states that it must be demonstrated that the cumulative effect of proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood by more than one foot.

For Pony Slough, in both the case of 44 CFR § 60.3, c. and Ordinance No. 2027, the base flood is the 1-Percent Annual Chance Event.

1.4.3 Tsunami Hazard Area

The City of North Bend has issued Ordinance No. 2028. The ordinance concerns the Tsunami Hazard Overlay Zone, which was established to increase the resilience of communities to a local source Cascadia Subduction Zone (CSZ) tsunami by establishing standards and requirements that apply to land use and development. The ordinance prohibits certain types of facilities within the Tsunami Hazard Overlay Zone but also establishes exceptions.

1.4.4 Firefighting Response Time

14 CFR § 139.319, h. states that within 3 minutes from the time of alarm, at least one aircraft rescue and firefighting vehicle must reach the midpoint of the farthest runway serving aircraft from the vehicle’s assigned post and begin application of extinguishing agent.

1.4.5 Drainage Infrastructure

The storm water infrastructure associated with the Airport development actions will be subject to the federal regulations for surface drainage design (FAA 2013) and hazardous wildlife attractants (Section 2-3.b., FAA 2007). On airfields, the objective of storm drainage design is to provide for safe passage of vehicles or operation of the facility during the design storm event.

“The design of appropriate discharge facilities for storm water collection and conveyance systems includes consideration of storm water quantity and quality. Local, state, and/or Federal regulations often control the allowable quantity and quality of storm water discharges. To meet these regulatory requirements, storm drainage systems will usually require detention or retention basins, and/or other best management practices (BMPs) for the control of discharge quantity and quality” (Section 1-5.3.4, FAA 2013).

Local regulations that govern within the project area are dictated by the City of North Bend. The City adheres to the Oregon Drainage Law for storm water management.

The requirements for conveyance, water quantity, and water quality control are defined as follows:

1.4.5.1 *Conveyance*

The design and installation of a functioning stormwater conveyance system is a crucial part of maintaining the safety of an airfield. A combination of surface drainage and storm drains should be used to create an efficient stormwater network. Pipes with watertight joints that meet the cover requirements should be used. Storm drains shall be designed to maintain a full-flow pipe velocity of 3ft/s or greater. Sub-drains will be used to drain the base material, lower the water table, or drain perched water tables. It is recommended that storm drains be sized based on gravity flow criteria at flowing full or near full; however, pressure flow may be justified in certain instances.

Conveyance systems on an airfield must be designed to convey a 5-year storm event with no encroachment of runoff on taxiway, runway pavements, or other surfaces. Conveyance systems in areas other than airfields must be designed to convey a 10-year storm event. Sag locations must be designed to accommodate a 50-year storm event. A design check of a 100-year storm event to evaluate the system performance is required (FAA 2013).

1.4.5.2 *Water Quantity Control*

Water quantity control may be provided by above or below ground detention; collection and conveyance facilities; underground tanks; and on-site facilities such as parking lots, pavements, and basins. Water quantity control facilities need to take into account timing, safety, and maintenance. Timing design shall evaluate the cumulative hydrograph with and without detention. For safety, design shall include elements to protect public safety and prevent wildlife attractants. For maintenance, design shall include appropriate access for proper long-term maintenance. Specifically, detention ponds need to be linear-shaped dry detention ponds with a maximum of a 48-hour detention period for the design storm (Section 2-3.b., FAA 2007).

1.4.5.3 *Water Quality Control*

Best Management Practice (BMP) selection needs to take into consideration the watershed area served, physical conditions of the site, and the water quality objectives. Particular attention is required in the selection of appropriate BMPs to meet the requirements for controlling runoff associated with aircraft and airfield pavement deicing activities, which are required to maintain safe aircraft operating conditions during the winter months.

The Airport is a permitted industrial facility under the 1200-Z Industrial storm water General Permit (1200-Z) administered by the DEQ. Runoff from industrial areas may contain heavy metals, sediments, and petroleum hydrocarbons. The Airport is required to develop, maintain, and implement a Storm Water Pollution Control Plan (SWPCP) describing industrial activities, significant materials storage, runoff patterns, drainage infrastructure, source control measures, and storm water treatment systems. The SWPCP must be kept current when changes are made to the facility and will need to be updated and submitted to DEQ within 30 days after the modification. New drainage areas and discharge points may require establishment of new storm water

monitoring points under the 1200-Z. A substantial modification to the characteristic of an existing discharge point may invalidate existing monitoring waivers.

The clearing, grading, and excavating activities associated with the proposed project, if in excess of 1 acre, will require a 1200-C Construction storm water General Permit (1200-C) administered by the DEQ. The 1200-C is typically obtained during final design, and application must be submitted at least 30 days prior to construction. The 1200-C application must include a set of design drawings for erosion control (i.e., Erosion and Sediment Control Plan).

2 EXISTING CONDITIONS

2.1 Location and Climate

The Airport is located on the southern coast of Oregon within the City of North Bend. The climate in the Airport vicinity is humid, with little temperature variation throughout the year. Based on records from the Western Regional Climate Center, the Airport’s average annual rainfall is 62.8 inches, and the average snowfall is only 0.8 inches. The average number of days per year with measurable precipitation is 162. The warmest month is August, with an average temperature of 59.9 degrees F, and the coldest month is January, with an average temperature of 45.8 degrees F. The average annual temperature is 52.6 degrees F.

Table 1 below displays 24-duration rainfall depths, in inches, for multiple return interval events at the Airport. The rainfall depths are from the National Oceanic and Atmospheric Administration (NOAA) Atlas 2 Precipitation Frequency Estimates. Return intervals are based on the probability that the given event will be equaled or exceeded in a given year. For example, there is a 1 in 5 chance (20 percent chance) that a 5-year return interval event will happen in a given year.

| Table 1: Rainfall Values | | | |
|--------------------------|----------|------------------|--------------------------------|
| Return Interval | Duration | Rainfall, inches | Design Parameter |
| 2 year | 24-hour | 1.6 | Flow control |
| 5 year | 24-hour | 2.0 | Pavement encroachment check |
| 10 year | 24-hour | 2.2 | Flow control |
| 25 year | 24-hour | 2.6 | Flow control |
| 50 year | 24-hour | 2.7 | Sag check |
| 100 year | 24-hour | 3.0 | Flow control; Conveyance check |

2.2 Soils and Terrain

The National Resource Conservation Service (NRCS) Soils Survey found only Udorthents within the study area. The soil description is limited and states that the soil is poorly drained, and that the parent material is alluvium, dredging spoil, dune sand, and wood chips. The topography in the area surrounding the Airport is mildly sloped. Soils within the airfield safety area are displayed in **Figure 4 – Soils**.

2.3 Regulated Wetlands and Waterways

The Airport is surrounded by the open waters of Coos Bay to the north and southwest and by the open waters of Pony Slough to the east. A wetlands and waterway delineation conducted in November 2018 was

documented in the *Wetland Delineation Report* (PBS, 2019). A single emergent tidal wetland was delineated within the project area (Study Area B) on the northeast side of the Airport. The jurisdictional elevations of the surface waters (Coos Bay and Pony Slough) for the project area were established in Table 2 and mapped on Figure 6B of the *Wetland Delineation Report* (PBS, 2019).

Coos Bay and Pony Slough are listed as 303(d) Impaired Waterbodies due to Fecal Coliform. The Airport activities associated with the proposed project do not contribute to this constituent of concern. The City does own and maintain a wastewater treatment plant located on Airport property, which is south of Runway 4/22 near Taxiway C. Treated wastewater effluent from this plant is discharged into the Coos Bay Channel as permitted by the DEQ. Airport activities associated with the proposed project do not impact this facility.

2.4 FEMA Floodplains

The Airport is covered by Flood Insurance Rate Map (FIRM) No. 41011C0186E and FIRM No. 41011C0167. There are effective Zone AE floodplains adjacent to the Airport and on Airport property (see **Figure 5 – FEMA Floodplains**). There are defined Base Flood Elevations (BFEs) but no defined floodway.

2.5 Tsunami Hazard Area

The Airport is covered by Tsunami Inundation Map Coos-05. The Airport is in the “SM” earthquake size zone, and thus is subject to the requirements of the City of North Bend’s Ordinance No. 2028. The existing ARFF building is classified as an Essential Facility according to section 18.50.020(1)(b-d).

2.6 Existing Drainage Conditions.

Multiple drainage paths exist at the Airport. Existing drainage at the Airport is displayed in **Figure 3 – Existing Drainage**. The primary runway, Runway 4/22, is oriented in a southwest-to-northeast direction. Runway 4/22 mostly drains from the northeast to the southwest. Water on Runway 4/22 is intercepted by existing drainage infrastructure and conveyed to Outfalls #1, #2, or #3. Outfall #1 is at the southwest end of the runway and is on the south side of the runway. Outfall #2 is halfway along the runway and is on the north side of the runway. Outfall #3 is near the northeast end of the runway and is on the north side of the runway. With the drainage basins draining to Outfalls #1 and #2, there are water quality swales that provide storm water treatment prior to discharge at the outfalls. These are located between Taxiway C and Runway 4/22.

The secondary runway, Runway 13/31, is oriented from the southeast to the northwest and primarily drains in that direction. Multiple inlets along the northern 2/3 of the runway intercept storm water and convey it to Outfalls #2 and #3. The southern 1/3 of the runway drains to multiple outfalls (#4-#9) with most of the area discharging to Outfall #9 in the southeast corner of the Airport.

2.7 Existing Industrial Activities

The industrial activities at the Airport consist of storing and loading/unloading of significant materials (primarily fuel), fueling, maintenance, and minor amounts of deicing. The fuel farm has a containment area and an oil water separator prior to discharge to Outfall #2 on the north side of the Airport. The terminal area has a similar containment area and flows through a series of water quality swales prior to discharging to Outfall #1 at the southwest end of the Airport. Outfall #1 and #2, along with two other outfalls to the north (Outfall #3) and southeast (Outfall #9), are regularly monitored and outflow samples are collected and tested for pollutants of concern in accordance with the Airport’s 1200-Z Permit.

3 PROJECT IMPACTS

3.1 Proposed Improvements

The EA covers the following proposed actions on the Airport:

- Correct Runway 4-22 RSA to meet design standards for C-III aircraft
- Remove direct access taxiway connectors to enhance safety
- Reconstruct main general aviation apron pavement
- Demolish and reconstruct the ARFF building
- Install maintenance improvements to the MALSR
- Relocation of the FAA glide slope instrumentation.

3.2 Water Resources Impacts

The impact to the water resources, including regulated wetlands and waterways, floodplains and drainage infrastructure associated with each of these improvements, is discussed below. Their regulatory actions are described in the following section.

3.2.1 Runway 4/22 RSA

The FAA requires a safety buffer surrounding Runway 4/22. To meet these standards, OTH proposes a one-time fill at the northeast end of the runway where Coos Bay intersects with Pony Slough. The fill would be level with the elevation of the existing runway edge, and the fill would consist of mixed material (sand, silt, rock, riprap). Two possible options for the bank stabilization are as follows:

1. Riprap border approximately 15 feet wide with a 15-degree slope terminating into the bay/slough.
2. Eco-block or sheet pile installed at the edge of the fill.

Based on the biological assessment, option 2, the eco-block or sheet pile is the preferred option and is therefore evaluated in this report. The preferred alternative would result in approximate 10,250 cubic yards of fill. For more details on the fill calculations, see the technical memorandum included in **Appendix B**.

Because the fill is at the edge of the Airport, adjacent to and draining into the bay/slough, there will be no impact to the existing drainage system. The fill will occur in a mapped Zone AE floodplain impacting regulated floodplains and waterways within this study area.

3.2.2 Taxiway Connectors

The FAA recommends the elimination of direct access (without turns) from apron or gate areas to a runway. There are two taxiway connectors at the Airport that provide direct access to Runway 13/31 from the main General Aviation ramp (see **Figure 2 – Proposed Project**). Sections of these two taxiway connectors will be removed to eliminate direct access to the runway according to FAA safety guidelines.

There will be a net reduction of 30,137 sf (0.69 ac) in impervious surface area. There are no regulated floodplains, wetlands, or waterways within this study area. The impact to the existing drainage system is discussed in Section 3.2.4.

3.2.3 General Aviation Apron

The main General Aviation apron is located west of Taxiway A, adjacent to the northern one-third of Runway 13/31. The apron is approximately 36,110 square yards. It was constructed during World War II and was resurfaced in 2001. The pavement condition has deteriorated, and pavement replacement will be required.

Upon completion of construction, there will be no change in impervious area; therefore, there will be no impact on the existing drainage system. There are no regulated floodplains, wetlands, or waterways within this study area.

3.2.4 ARFF Building

The ARFF building is centrally located immediately south of the main hangar on the southwest side of the main apron. The existing 4,670 square foot (0.11 acre) ARFF building was constructed in 1960 and is in poor condition. The existing building will be demolished, and a new 11,431 square foot (0.26 acre) ARFF building will be constructed immediately north of the main hangar (see **Figure 2 – Proposed Project**).

The new building will have a larger footprint, but in combination with the removal of the taxiway connectors, there will be a net reduction in impervious area (see **Table 2**). The taxiway connectors, the existing ARFF building, and the proposed ARFF building are all within the same hydrologic catchment and drain to the same outfall (see **Figure 2 – Proposed Project** and **Figure 3 – Existing Drainage**). Therefore, there will be no adverse impact on the existing drainage system. There are no regulated floodplains, wetlands, or waterways within this study area.

| Table 2: Net Change in Impervious Area | | |
|--|-------------|--------|
| Item | Area | |
| | Square Feet | Acres |
| Proposed ARFF Building | 11,431 | 0.26 |
| Remove Existing ARFF Building | (4,670) | (0.11) |
| Remove Taxiway Connectors | (30,137) | (0.69) |
| SUM | (23,376) | (0.54) |

3.2.5 MALSR Maintenance Improvements

The MALSR consists of a threshold light bar and seven five-light bars located on the extended runway centerline (see **Figure 2 – Proposed Project**). The first bar is located 200 feet from the runway threshold, and the remaining bars are located at each 200-foot interval out to 1,400 feet from the threshold. Maintenance of the MALSR units normally requires replacement of instrumentation and electrical fittings.

The maintenance improvements would occur on the existing catwalk, with no in-water work. Therefore, there will be no impact on the existing drainage system, regulated floodplains, wetlands, or waterways within this study area.

3.2.6 Glide Slope Antenna

The existing glide slope antenna for Runway 4/22 does not meet the minimum 150-foot required distance from the center of runway. The existing antenna is on the north side of Runway 4/22.

The following alternatives are being considered:

- Relocation of the glide slope 30 additional feet towards the edge of Coos Bay and beyond the existing footprint of OTH, resulting in a fill embankment.
- Relocation to the opposite side (south) of the runway center, between Taxiway C and runway 4/22. Associated equipment shelter and access way will be located approximately 150 feet south of the Runway 4/22 centerline. This location may require excavation for utilities.

The first alternative would require a fill embankment, like the Runway 4/22 RSA fill, and would have no impact on the existing drainage system. The fill will occur in a mapped Zone AE floodplain impacting regulated floodplains and waterways within this study area.

The second alternative would require filling in an existing water quality swale to allow for a level surface for the functionality of the glide slope. This impact to the existing drainage system would need to be mitigated with other water quality improvements. Due to the existing drainage network configuration and proximity to the outfall, the new water quality treatment mechanism would need to be located within the airfield operating area. The WSDOT *Aviation Stormwater Design Manual: Managing Wildlife Hazards Near Airports*, Chapter 6 modifies storm water best management practices (BMPs) for airport usage (2008). There are no regulated floodplains, wetlands, or waterways within this study area.

3.3 Regulatory Actions

The Runway 4/22 RSA fill activity would likely exceed the threshold to qualify for a General Authorization or General Permit under the USACE and DSL regulations and is likely to require an Individual Permit for fill activities. A pre-application meeting on July 17, 2019 discussed the fill activity and proposed impacts to advance the regulatory process with the agencies.

For the Runway 4/22 RSA fill alternative, fill will occur in a mapped Zone AE floodplain. To satisfy FEMA requirements and the City of North Bend's Ordinance No. 2027, a hydraulic model was prepared to show that the fill will not increase the water surface elevations. For more details on the hydraulic model, see the technical memorandum included in **Appendix A**. If the first alternative for the Glide Slope Antenna relocation is preferred, a similar analysis will need to be completed.

Because the proposed ARFF building is within the Tsunami Hazard Zone, construction is regulated under section 18.50.050(2)(a-c) of the City of North Bend's Ordinance No. 2028. However, section 18.50.060, which covers use exceptions, states that structures may be permitted upon authorization of a use exception if:

1. There is a need for a strategic location for a fire station (section 18.50.060(2)), or
2. There are no reasonable, lower-risk alternative sites available for the proposed use (section 18.50.060(3)(a)).

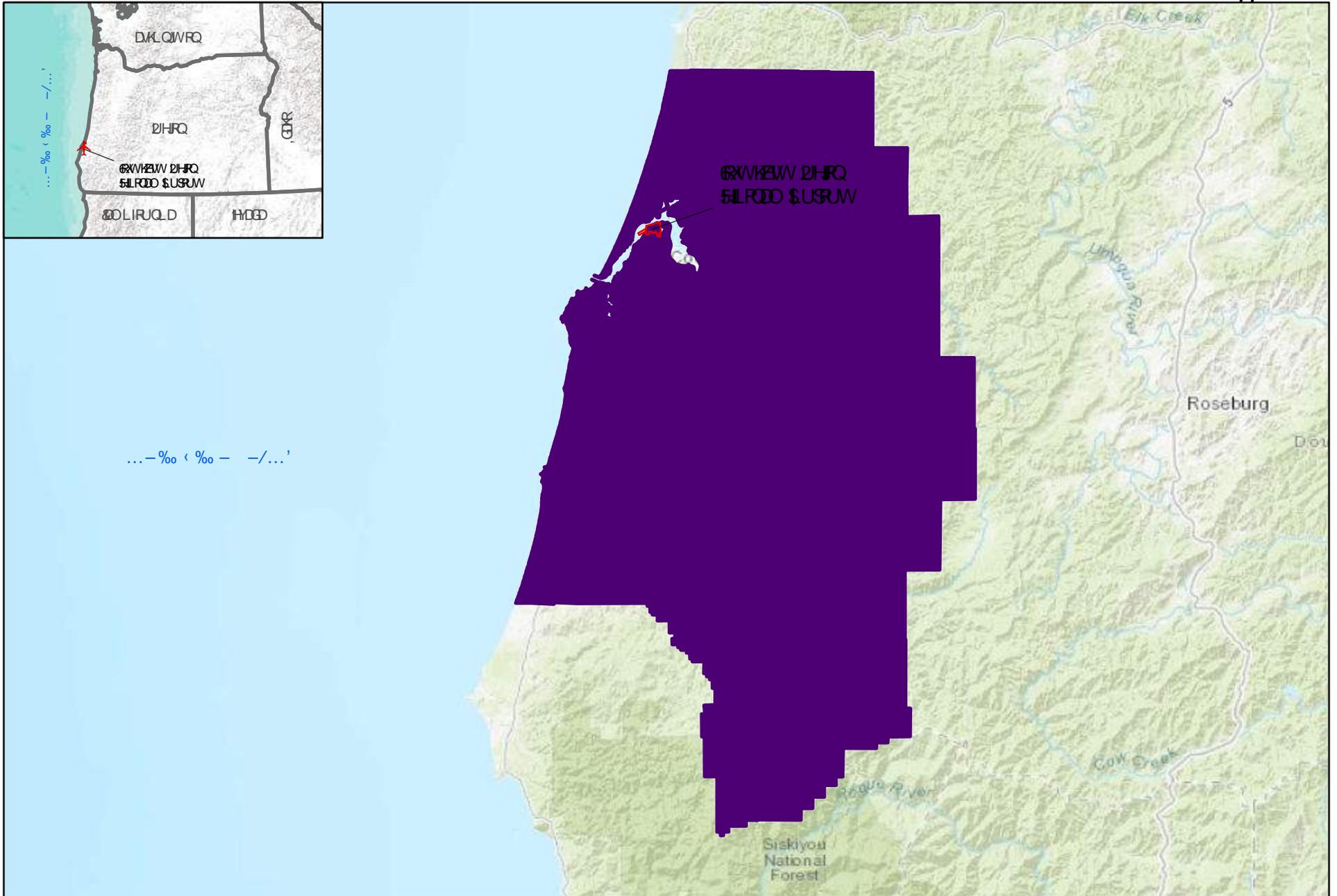
Because the ARFF building's purpose is to prevent the spread of fire and rapidly respond to rescue situations at the Airport, the location near main runways is critical, and mandated by FAA (14 CFR § 139.319, h.). Relocating the structure to an alternative site outside of the Tsunami Hazard Zone would significantly increase response time, increasing the probability of loss of life and property in the case of an

emergency. In a July 2019 consultation with Coos County planning office, an administrative waiver for the ARFF facility was granted.

Any construction activities exceeding 1 acre of land disturbing activity will be required to obtain coverage under the 1200-C Construction Storm Water General Permit, including an Erosion and Sediment Control Plan.

Any modifications to the facility drainage, including changes to site impervious areas, must be updated in the Airport's SWPCP.

FIGURES



a DOHV
 HJCG
 S.U.S.R.U.W. D.H.R.Q. S.H.L.R.O.D. S.U.S.R.U.W.
 S.R.V. S.K.T.Y

Fig. 1. Vicinity Map



Southwest Oregon Regional Airport



Aerial Imagery Source: Esri

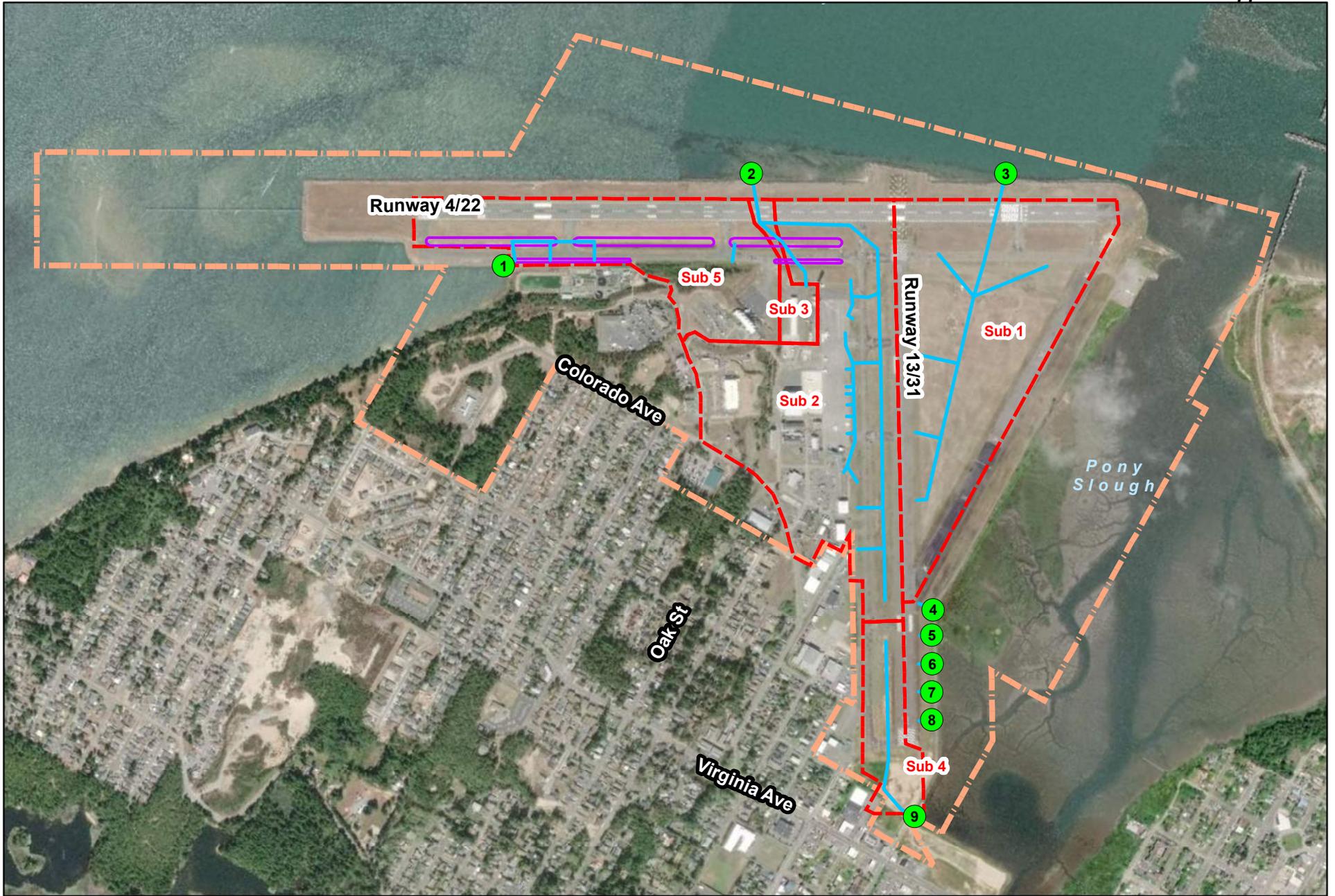
Legend

- ▲ Existing Glide Slope
- ▲ Proposed Glide Slope
- ▭ Existing Glide Slope Critical Area
- ▭ Proposed Glide Slope Critical Area
- ▭ MALSR
- ▭ Remove ARFF
- ▭ Proposed ARFF
- ▭ Remove Taxiway Connector
- ▭ RSA Fill Area
- ▭ Apron
- Study Area
- Airfield and Safety Area

Fig. 2. Proposed Project



**Southwest Oregon
Regional Airport**



Aerial Imagery Source: Esri

Legend

-  Outfalls
-  Storm Sewer
-  Water Quality Swales
-  Airfield and Safety Area
-  Drainage Basins

Fig. 3. Existing Drainage



**Southwest Oregon
Regional Airport**



Legend

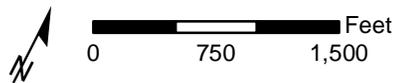
- Existing Airfield and Safety Area
- Bullards sandy loam, 0 to 7 percent slopes
- Dune land
- Fluvaquents-Histosols complex
- Netarts loamy fine sand, 2 to 30 percent slopes
- Udorthents, level
- Waldport fine sand, 0 to 30 percent slopes
- Water

Aerial Imagery Source: Esri



**Southwest Oregon
Regional Airport**

Fig. 4. Soils



FEMA floodplain data is from FIRM Map No. 41011C0186E and No. 41011C0167E, both revised March 17, 2014.
Aerial Imagery Source: Esri

Legend

- Existing Airfield and Safety Area
- Special Flood Hazard Area Zone AE

Fig. 5. FEMA Floodplains



**Southwest Oregon
Regional Airport**

**APPENDIX A: Technical Memorandum – Regulatory Compliance for
Fill at the Southwest Oregon Regional Airport**



Technical Memorandum

To: Chelsea Schnabel – City Planner, City of North Bend

From: Aaron Killgore – Project Manager, Mead & Hunt

Date: May 13, 2019

Subject: Regulatory Compliance for Fill at the Southwest Oregon Regional Airport

Introduction and Background

The Southwest Oregon Regional Airport (OTH) is a commercial service airport located on the southern coast of Oregon, within the City of North Bend. The Airport's primary runway is Runway 4-22. Currently, the Runway Safety Area (RSA) for Runway 4-22 does not meet the design standards for C-III airports as established by the FAA. The Airport completed an Airport Master Plan in 2013 which identified the need to correct the RSA for Runway 4-22. The FAA's Seattle Airport District Office (ADO) concurred with the findings of the Master Plan and directed OTH to complete an Environmental Assessment (EA).

To meet FAA standards, OTH proposes a one-time fill at the northeast end of Runway 4-22, where Pony Slough empties into Coos Bay. The fill will occur in a Federal Emergency Management Agency (FEMA) Zone AE floodplain. There are defined Base Flood Elevations (BFEs) for the Zone AE floodplain but there is no defined floodway. The flooding source in the project area is listed as Pony Slough.

Regulatory Information

44 CFR Ch1, Section 60.3, c. states the following applicable regulatory requirements for construction projects in flood-prone areas where the Administrator has provided a notice of final flood elevations for one or more special flood hazard areas on the community's Flood Insurance Rate Map (FIRM) but has not identified a regulatory floodway or a coastal high hazard area:

- Notify adjacent communities and the State Coordinating Office prior to any alteration or relocation of a watercourse;
- Assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained; and
- Demonstrate that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood by more than one foot.

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The City of North Bend has issued Ordinance No. 2027, which repeals and replaces the text of North Bend City Code Title 18, Chapter 18.48. In Ordinance No. 2027, Section 18.48.140 states that it must be demonstrated that the cumulative effect of proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood by more than one foot.

For Pony Slough, in both the case of 44 CFR Ch1, Section 60.3, c. and Ordinance No. 2027, the base flood is the 1-Percent Annual Chance Event.

Approach

In an email to Aaron Killgore (Mead & Hunt) on April 19, 2019, Chelsea Schnabel (City of North Bend) confirmed that there is no history of development that would affect future permit approvals. Therefore, the full one foot of water surface elevation increase is still available for proposed development.

To demonstrate that the proposed fill at the northeast end of Runway 4-22 will not increase Pony Slough water surface elevations by more than one foot, Mead & Hunt developed a hydraulic model of Pony Slough. Publicly available bathymetry and topography were used for the model geometry, and the hydrologic data published in the most recent FEMA Flood Insurance Study (FIS) was used for the model boundary conditions.

Analysis

Mead & Hunt used the Hydrologic Engineering Center's (CEIWR-HEC) River Analysis System (HEC-RAS) version 5.0.7 to perform the hydraulic analysis. Publicly available bathymetry data from the University of Oregon was used to represent the Pony Slough channel (Eidam, 2019). Publicly available topography data from the Oregon Department of Geology and Mineral Industries (DOGAMI) was used to represent the overbank area (Oregon Department of Geology and Mineral Studies, 2019). The bathymetry and the topography were combined into a single terrain using Esri's ArcMap version 10.3.1.

The combined terrain was imported into HEC-RAS. Mead & Hunt digitized cross-sections along Pony Slough, from the downstream end of Pony Slough where it empties into Coos Bay upstream to the point where Pony Slough becomes Pony Creek. Station-elevation data was extracted from the combined terrain along the digitized cross-sections.

The upstream and downstream boundary conditions for the model were defined using data from the Coos County FIS (Federal Emergency Management Agency, 2018). Table 1 lists the upstream flows and the downstream water surface elevations used in the hydraulic model.

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Table 1. Hydraulic Model Boundary Conditions

| Model Boundary Condition | 10-Percent Annual Chance Event | 2-Percent Annual Chance Event | 1-Percent Annual Chance Event | 0.2-Percent Annual Chance Event |
|------------------------------------|--------------------------------|-------------------------------|-------------------------------|---------------------------------|
| Upstream Flow | 320 cfs | 420 cfs | 480 cfs | 590 cfs |
| Downstream Water Surface Elevation | 11.3 feet | 12.0 feet | 12.2 feet | 12.8 feet |

The Coos County FIS states that roughness factors (Manning's n-values) for the study area range from 0.030 to 0.060 for the main channel and range from 0.035 to 0.080 for the overbank. Preliminary simulations confirmed that the model was not sensitive to adjustment of Manning's n-values, because the water surface elevations were controlled by the downstream boundary conditions.

In a preliminary version of the geometry, ineffective flow areas were defined in the overbanks, primarily where divided flow was occurring. Preliminary simulations confirmed that the model was not sensitive to the addition of ineffective flow areas, because water surface elevations were controlled by the downstream boundary conditions.

After the Existing Conditions geometry was finalized, a copy of the geometry was made and modified to represent the Proposed Conditions. At the two downstream cross-sections, numbered 650 and 712, the terrain data was modified to represent the proposed fill for the Runway 4-22 RSA. Because of the backwater effect from Coos Bay, there was no increase (0.00 feet) in the water surface elevation for any of the Annual Chance Events simulated.

The finalized HEC-RAS project with the Existing Conditions and Proposed Conditions geometry files, plan files, and flow file are included as an electronic attachment to this memorandum.

Conclusion

The objective of this analysis was to demonstrate that proposed fill for the Runway 4-22 RSA along the left bank of Pony Slough, just before it empties into Coos Bay, would not increase the water surface elevation of the base flood by more than one foot. The results of the hydraulic model show that the proposed fill will cause no increase in the water surface elevation of the base flood on Pony Slough.

Recommendation

Based on the analysis presented in this memorandum, the proposed fill for the Runway 4-22 RSA should be approved by the local floodplain administrator, as it meets both the requirements of both 44 CFR Ch1, Section 60.3, c. and the City of North Bend Ordinance No. 2027.

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Page 4

Floodplain Administrator’s Acknowledgement

Signature indicates acceptance of the above stated recommendations.

Name, Title

Date

Signature

Memorandum

**APPENDIX B: Technical Memorandum: Basis of Design for Runway
Safety Area Fill Volumetric Calculations**



Technical Memorandum

Date: August 2, 2019

Subject: Basis of Design for Runway Safety Area Fill Volumetric Calculations

(1) Introduction and Background

A portion of the Runway Safety Area (RSA) and the Runway Object Free Area (ROFA) do not meet the FAA RSA and ROFA criteria for C-III aircraft. RSA requirements for a C-III aircraft approach category (AAC) and airplane design group (ADG) requires a 1,000-foot RSA beyond the departure end. Various alternatives have been considered throughout the master planning and NEPA process. The preferred alternative includes adding a bulkhead to northwest end of the Runway 4/22 RSA, in the adjacent Coos Bay, to meet FAA safety standards. In-water work in Coos Bay is managed by various agencies including USFWS, Coos County, NOAA, USACE and Oregon Dept of State Lands.

Depending on the size of the extended ground, the RSA Fill Area may overlap with a surveyed area of eelgrass, a federally designated Essential Fish Habitat (EFH) and a Habitat of Particular Concern under the Magnuson-Stevens Fishery Conservation and Management Act.

This memorandum describes the approach used to quantify the proposed RSA bulkhead area and volume for the purposes of the Environmental Assessment.

(2) Approach

Filling a section of Coos Bay to meet the required area of the RSA has been determined as the preferred alternative in the OTH Master Plan. The options for fill design include the following:

1. Place fill material level to the existing runway edge and surround with riprap along a 15-degree fill slope, which terminates in the bay.
2. Place fill material level to the existing runway edge and install eco-block or sheet pile at the limits of the fill.

Option 1 has a significantly larger surface area and volume, and the extended footing of this method will directly impact the eelgrass, and have more significant indirect impacts. Option 2 is approximately 35 feet from the eelgrass beds and is not expected to directly impact the eelgrass, based on the 2019 survey results of eelgrass presence of Coos Bay (2019 OTH Biological Assessment). Option 2 is the preferred option.

(3) Analysis

The various data sources that Mead & Hunt used for the analysis were in different vertical datums. As discussed below, Mead & Hunt converted all the data sources to the North American Vertical Datum of 1988 (NAVD88).

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Basis of Design for RSA Fill Volumetric Calculations
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Page 2

Airport Design:

FAA eNASR data was used to input runway end points, runway centerline was derived from eNASR runway end latitude and longitude. Runway end points were converted from WGS84 to NAD 1983 2011 State Plane Oregon South FIPS 3602 Ft International. RSA layer was created by offsetting C-III design distances from runway end points/centerline.

Bathymetry:

For the analysis, Mead & Hunt used publicly available bathymetry, compiled and combined by the University of Oregon (Eidam, 2019). The bathymetry was stored as depth (in meters) below Mean Sea Level (MSL). Mead & Hunt converted the data to elevation (in feet, NAVD88).

The University of Oregon data is in TIN format, so the horizontal spacing of points varies. Because the data is a mosaic of multiple data sources, vertical accuracy is not reported. The original datasets, referenced by the University of Oregon, also do not discuss vertical accuracy.

Reference: Eidam, E. (2019, April 22). Coos Bay Bathymetry. Retrieved from Github:
<https://github.com/das7105/Coos-Bay-Bathymetry>.

Topography:

Publicly available topography data from the Oregon Department of Geology and Mineral Industries (DOGAMI) was used to represent the overbank area. The DOGAMI data is in raster format, with a horizontal cell size of 3 feet by 3 feet. The vertical datum is NAVD88.

Because this data is a mosaic of multiple data sources, vertical accuracy is not reported. The following disclaimers are listed in the metadata:

This mosaic data set provides a mosaic of digital elevation model (DEM) rasters collected in Oregon. This dataset includes DEM lidar data collected by the Oregon Department of Geology and Mineral Industries (DOGAMI) and the Oregon Lidar Consortium as well as other organizations that have provided a copy of lidar data to DOGAMI. This dataset provides high resolution elevation data that is used to produce three-dimensional models of the earth surface for the purpose of managing natural resources and mapping natural hazards.

Reference: Oregon Department of Geology and Mineral Studies. (2019, February 27). Data and Publications - LiDAR. Retrieved from State of Oregon Department of Geology and Mineral Industries:
<https://www.oregongeology.org/lidar/>

Combined surface:

The two elevation data sources were combined in Esri's ArcMap v10.3.1 as utilized as a composite representation of existing conditions for planning purposes.

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Fill calculations:

The existing runway surface is at elevation 12.0 feet (NAVD88). To evaluate the fill options, the existing runway surface was extended, level with the runway, to the edge of the proposed fill.

1. For Option 1, the top of slope was established outside of the Runway RSA, with no point along the top of slope being within 10-feet of the edge of the Runway RSA. The top of slope was defined to match the curvature of the existing fill that defines the airport. From the top of slope, the riprap was projected downward at a 15-percent slope until the surface intersected the existing bathymetry. At the deepest point, the fill is approximately 23 feet high. The total fill volume is approximately 23,026 cubic yards. **Figure 1** displays the details of Option 1.
2. For Option 2, there is a 10-foot buffer around the Runway RSA to accommodate a road around the Runway RSA. Because Option 2 includes eco-block or sheet pile, the edge of fill is vertical. Including the 10-foot buffer, the north side of the fill is approximately 89 feet and the east side of the fill is approximately 67 feet. The fill area is approximately triangular. At the deepest point, the fill is approximately 23 feet high. The total fill volume is approximately 2,215 cubic yards. **Figure 2** displays details of Option 2, which is the preferred option.

The jurisdictional elevations of the surface waters (Coos Bay and Pony Slough) for the project area were established in Table 2 and mapped on Figure 6B of the *Wetland Delineation Report* (PBS, 2019). The fill below each of these jurisdictional elevations was calculated for regulatory discussions.

Reference: PBS, *Wetland Delineation Report – SW Oregon Regional Airport Safety Improvements*, February 15, 2019

Technical Memorandum
 Basis of Design for RSA Fill Volumetric Calculations
 August 2, 2019
 Page 4

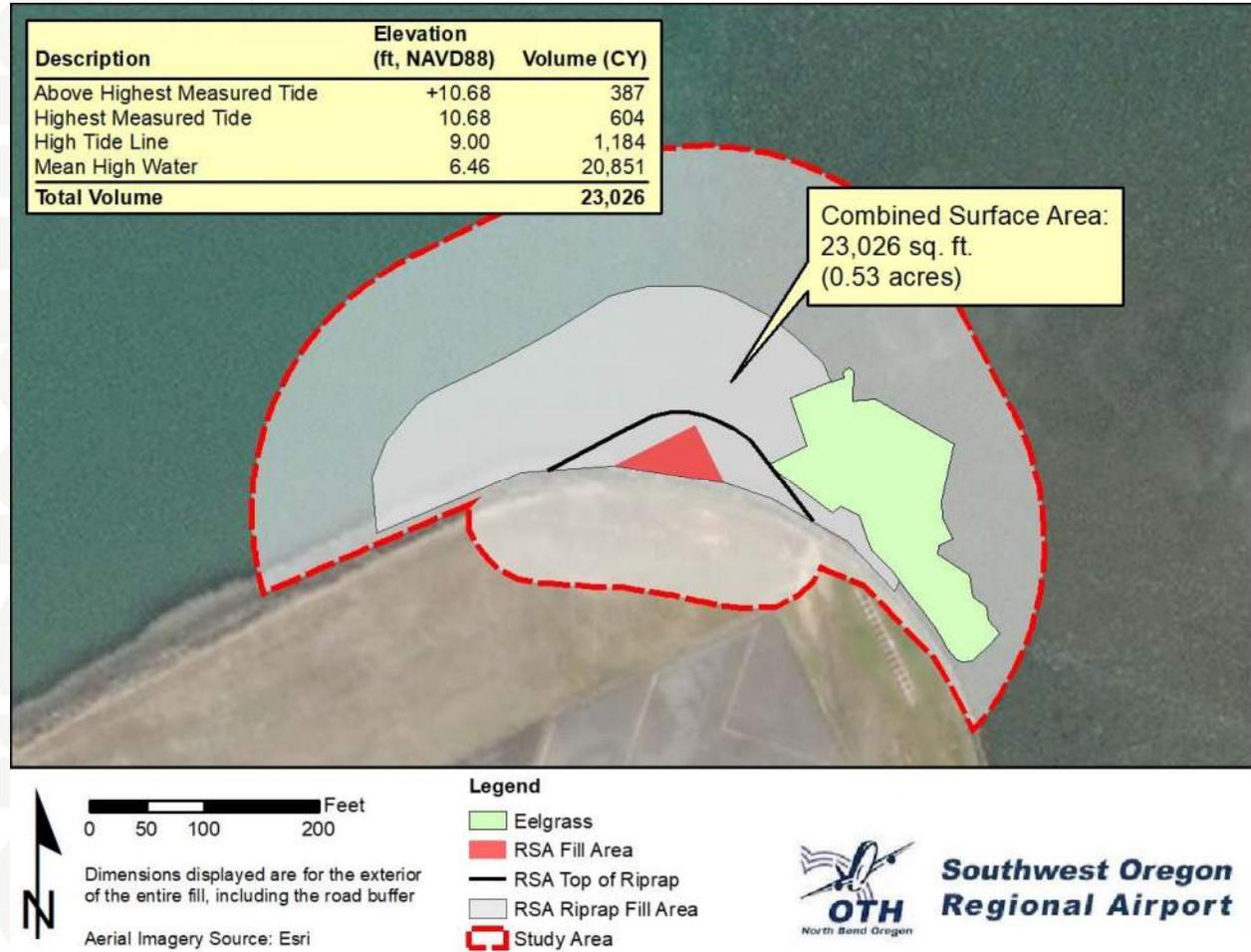


Figure 1. RSA fill area and sloped riprap for Fill Option 1.

Memorandum

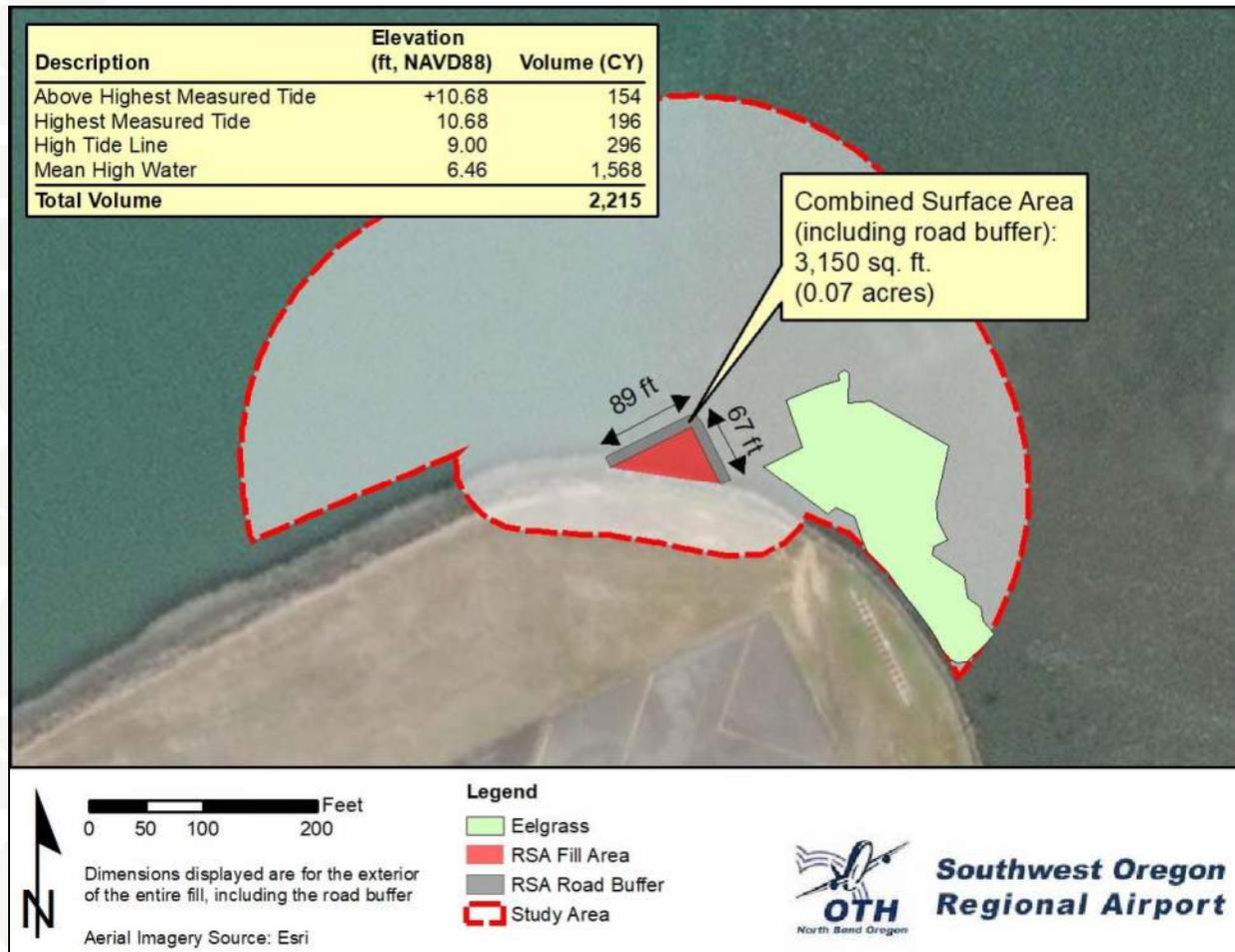


Figure 2. RSA fill area and buffer for Fill Option 1 (Preferred Fill Option).

(4) Conclusion

Using the preferred option, the estimated fill as a result of this analysis was approximately 2,215 cubic yards.

(5) Recommendation

The vertical accuracy of both the topographic and bathymetric data sets was not reported. Therefore, a topographic and bathymetric survey of actual site conditions is recommended prior to design of improvements and final quantification of fill impacts.

Appendix V
USACE Nationwide Permit



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, PORTLAND DISTRICT
NORTH BEND FIELD OFFICE
2201 BROADWAY, SUITE C
NORTH BEND, OR 97459-2372

September 17, 2021

Regulatory Branch
Corps No. NWP-2017-337

Ms. Theresa Cook
Coos County Airport District
1100 Airport Lane
North Bend, Oregon 97459
theresa@flyoth.com

Dear Ms. Cook:

The U.S. Army Corps of Engineers (Corps) received your request for Department of the Army authorization to permanently discharge up to 369 cubic yards of rock, soil, and concrete fill within a 0.1 acre area located below the high tide line (HTL) of Coos Bay expand an airport runway to meet Federal Aviation Administration safety runway area requirements. The project is located in Coos Bay at the Southwest Oregon Regional Airport, in North Bend, Coos County, Oregon. The project site is located at the northeast end of runway 4-22 at Latitude/Longitude: 43.42379°, -124.240222°.

This letter verifies your project as depicted on the enclosed drawings (Enclosure 1) is authorized by Nationwide Permit (NWP) No. 14, Linear Transportation Projects, and No. 27, Aquatic Habitat Restoration, Establishment and Enhancement Activities (*Federal Register, January 6, 2017, Vol. 82, No. 4*).

The permittee will permanently discharge rock, soil, and concrete fill below the HTL of Coos Bay construct a triangular bulkhead consisting of pre-cast concrete blocks. The blocks will be stacked upon one another and interlocked. The bulkhead will measure 89 foot by 67 foot. The permittee will discharge rock riprap below the HTL of Coos Bay at the base of the concrete bulkhead as scour protection. The riprap will measure 170 feet long, 8 feet wide, and 3 feet in height. The combined impacts of the bulkhead and riprap scour protection will result in a 0.1 acre impact below the HTL of Coos Bay.

The permittee will restore approximately 0.18 acre of intertidal habitat adjacent to the location as a mitigation action to restore function losses of critical habitat for fish species protected by the Endangered Species Act (ESA) and to enhance the shoreline to improve habitat for benthic organisms. The permittee will remove a remnant wooden boat ramp measuring approximately 0.09 acre in size, a remnant concrete and wooden dock measuring approximately 0.08 acre in size, and approximately 118 existing wooden piling. The permittee will place oyster shell hash within the mitigation site to provide habitat for native oyster spat to adhere to and utilize during their life history.

- 2 -

In order for this authorization to be valid, you must ensure the work is performed in accordance with the enclosed NWP 14 Terms and Conditions (Enclosure 2); NWP 27 Terms and Conditions (Enclosure 3); the Oregon Department of Environmental Quality (DEQ) 401 Water Quality Certification Conditions (Enclosure 4); the Oregon Department of Land Conservation and Development (DLCD) Coastal Zone Management Conditions (Enclosure 5); and the following special conditions:

a. This Corps permit does not authorize you to take an endangered species in particular those species identified in Enclosure 6. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g., an ESA Section 10 permit, or a biological opinion (BO) under ESA Section 7, with “incidental take” provisions with which you must comply). The Federal Aviation Administration is the lead federal agency for ESA consultation for this project. The enclosed BO prepared by the National Marine Fisheries Service (NMFS), dated July 29, 2020 contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with the “incidental take” that is also specified in the BO (NMFS Reference Number WCRO-2019-03422). Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached BO (Enclosure 6), which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute noncompliance with your Corps permit. The NMFS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.

b. Permittee shall submit all permittee-responsible mitigation notifications and reports (e.g. as-built report, monitoring reports, site protection documentation) to the U.S. Army Corps of Engineers (Corps), Portland District, Regulatory Branch by e-mail to cenwp.notify@usace.army.mil and the email subject line shall include: NWP-2017-337, Coos County. If you are submitting files larger than 20 MB, contact your county Regulatory Project Manager for instructions.

c. Permittee shall implement and abide by the mitigation plan, “*Permittee-Responsible Mitigation Plan: Environmental Assessment Runway Safety Area Improvements (Runway 4/22) Southwest Oregon Regional Airport dated August 20, 2020* (Enclosure 7). Mitigation shall be constructed before or concurrent with the work authorized by the permit.

d. Permittee’s responsibility to complete the required compensatory mitigation as set forth in Special Conditions “b” through “d” will not be considered fulfilled until Permittee

- 3 -

has demonstrated mitigation success and have received written verification from the U.S. Army Corps of Engineers Portland District, Regulatory Branch.

The DEQ has issued a 401 Water Quality Certification for this project. No further coordination with DEQ is required provided the work is performed in accordance with all of the enclosed conditions.

The project appears to comply with the DLCDC Coastal Zone Management Act concurrence for this NWP. No further coordination with DLCDC is required provided the work is performed in accordance with all of the enclosed conditions.

Coos Bay is a water of the U.S. If you believe this is inaccurate, you may request a preliminary or approved jurisdictional determination (JD). If one is requested, please be aware that we may require the submittal of additional information to complete the JD and work authorized in this letter may not occur until the JD has been completed.

NWP General Condition 29 requires you to obtain the signature(s) of the new owner(s) if you sell the property associated with this permit in order to transfer the permit to the new owner. For your convenience, the enclosed *Permit Transfer* form (Enclosure 8) can be prepared and submitted to document the permit transfer.

The verification of this NWP is valid until March 18, 2022, unless the NWP is modified, reissued, or revoked prior to that date. If the authorized work has not been completed by that date and you have commenced or are under contract to commence this activity before March 18, 2022, you will have until March 18, 2023, to complete the activity under the enclosed terms and conditions of this NWP. If the work cannot be completed by March 18, 2023, you will need to obtain a new NWP verification or authorization by another type of Department of the Army permit.

Our verification of this NWP is based on the project description and construction methods provided in your permit application. If you propose changes to the project, you must submit revised plans to this office and receive our approval of the revisions prior to performing the work. Failure to comply with all terms and conditions of this NWP verification invalidates this authorization and could result in a violation of Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act. You must also obtain all local, state, and other federal permits that apply to this project.

Upon completing the authorized work, you must fill out and return the enclosed *Compliance Certification* form (Enclosure 9). We would like to hear about your experience working with the Portland District, Regulatory Branch. Please complete a customer service survey form at the following address:
https://corpsmapu.usace.army.mil/cm_apex/f?p=136:4.

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If you have any questions regarding this NWP verification, please contact Mr. Tyler Krug by telephone at (541) 756-2097 or email at Tyler.J.Krug@usace.army.mil.

FOR THE COMMANDER, MICHAEL D. HELTON, PMP, COLONEL, CORPS OF ENGINEERS, DISTRICT COMMANDER:

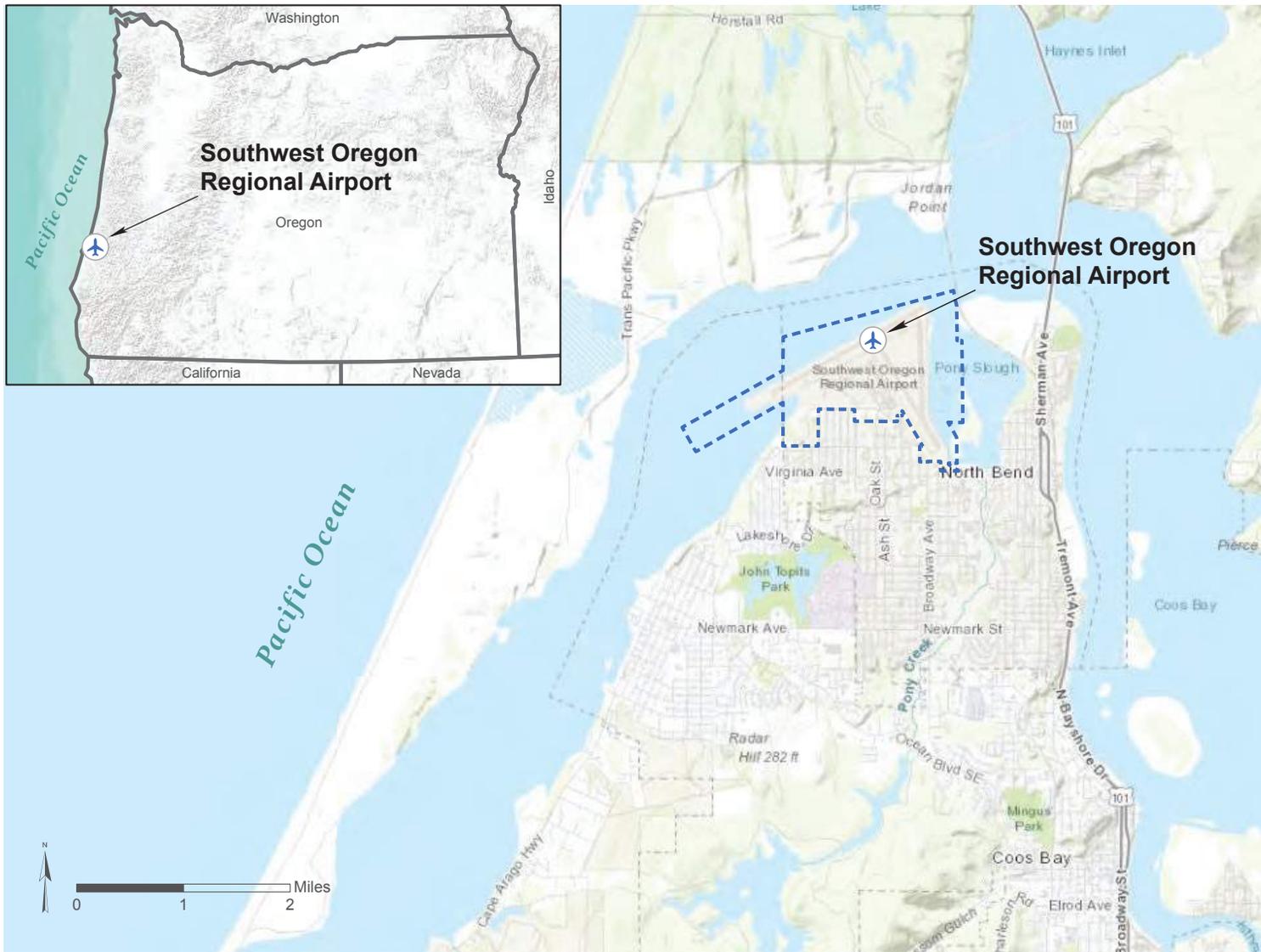
A handwritten signature in black ink, appearing to read 'W. Abadie', with a long horizontal flourish extending to the right.

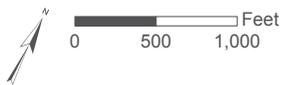
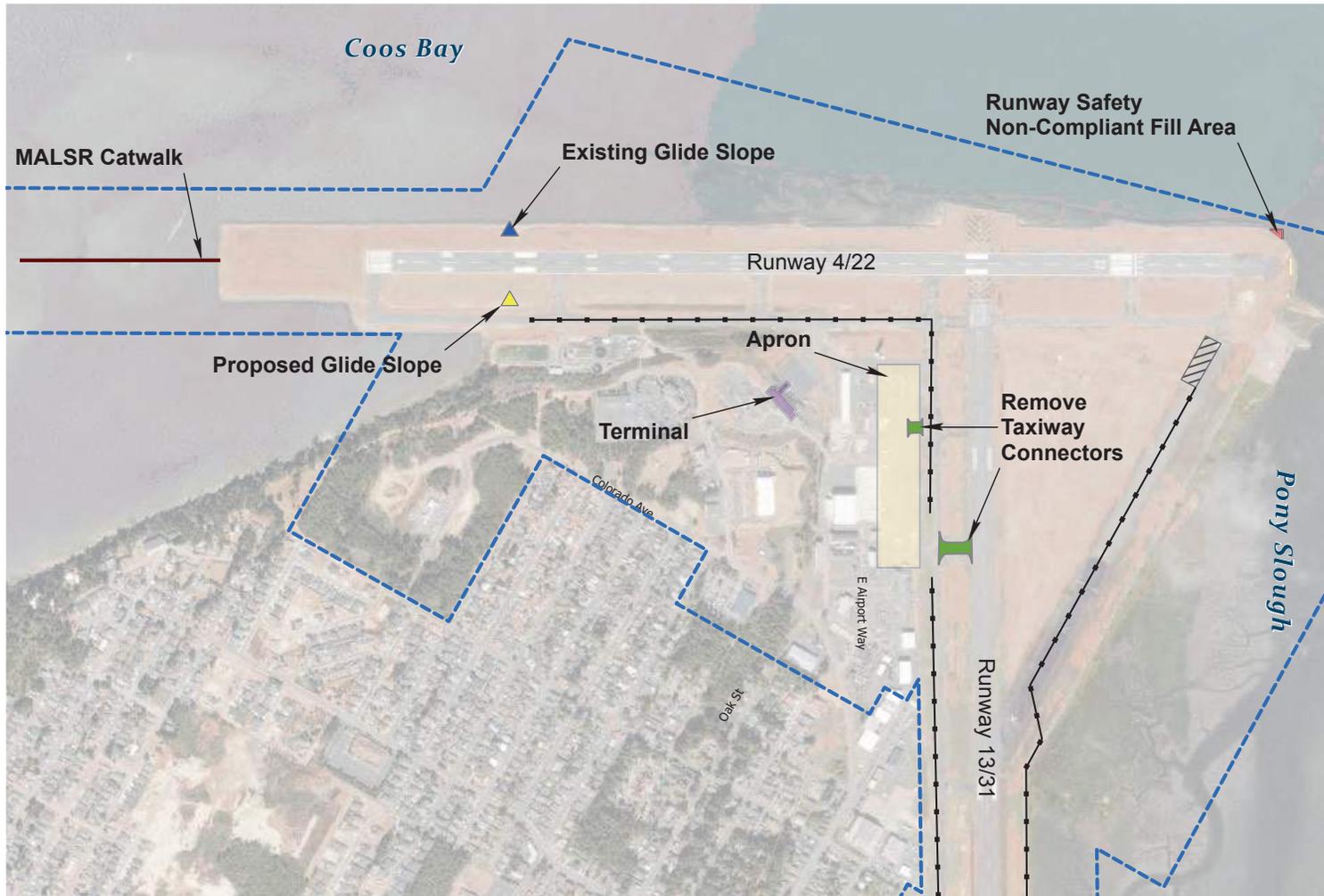
For: William D. Abadie
Chief, Regulatory Branch

Enclosures

cc:

Federal Aviation Administration (Ilon Logan, ilon.logan@faa.gov)
Mead and Hunt, Inc. (Aaron Kilgore, aaron.kilgore@meadhunt.com)
Oregon Department of State Lands (Bob Lobdell, bob.lobdell@dsl.state.or.us)
Oregon Department of Environmental Quality (401applications@deq.state.or.us)
Oregon Department of Land Conservation and Development (Patty Snow, patty.snow@dlcd.oregon.gov; Deanna Caracciolo, deanna.caracciolo@dlcd.oregon.gov)
Corps, Waterways Maintenance Section (Casey O'Donnell, casey.p.odonnell@usace.army.mil) (with drawings)

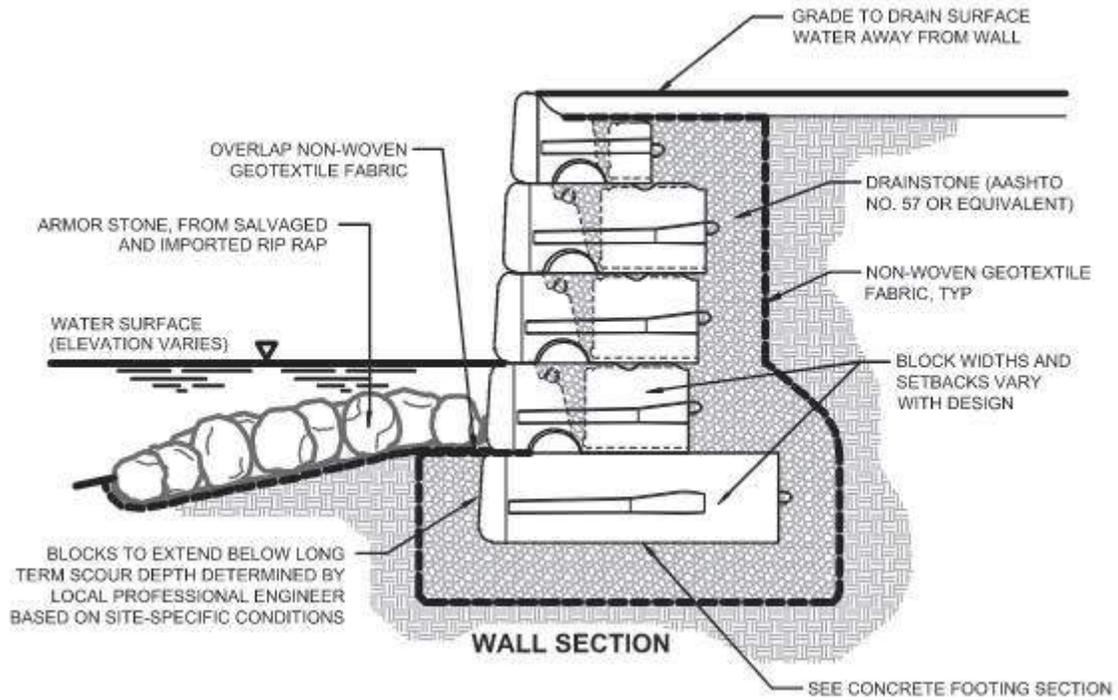




- Airfield Safety Area
- Terminal
- MALSR Unit
- Apron
- Taxiway Connectors

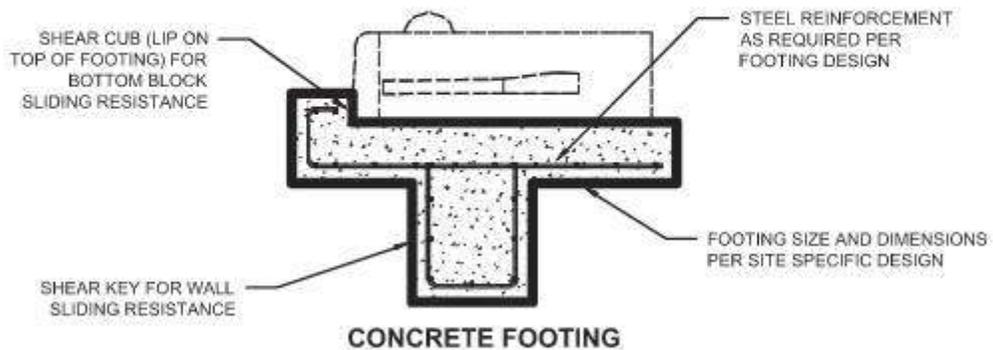
- ARFF Building
- Proposed ARFF Facility
- ▲ Glide Slope
- ▲ Proposed Glide Slope
- Construction Road

- Staging Area
- Runway Safety Non-Compliant Fill Area
- Action Areas



NOTES:

- USE ASTM NO. 57 STONE (OR AS SPECIFIED BY LOCAL PROFESSIONAL ENGINEER) TO INFILL BETWEEN BLOCKS.
- ACTUAL DESIGN BY PROFESSIONAL ENGINEER FOR SPECIFIC DETAILS AND FINAL DESIGN.
- WALLS MAY REQUIRE GEOGRID REINFORCEMENT.
- REFER TO FINAL ENGINEERING PLANS.



CONCEPTUAL SEAWALL/BULKHEAD DETAIL

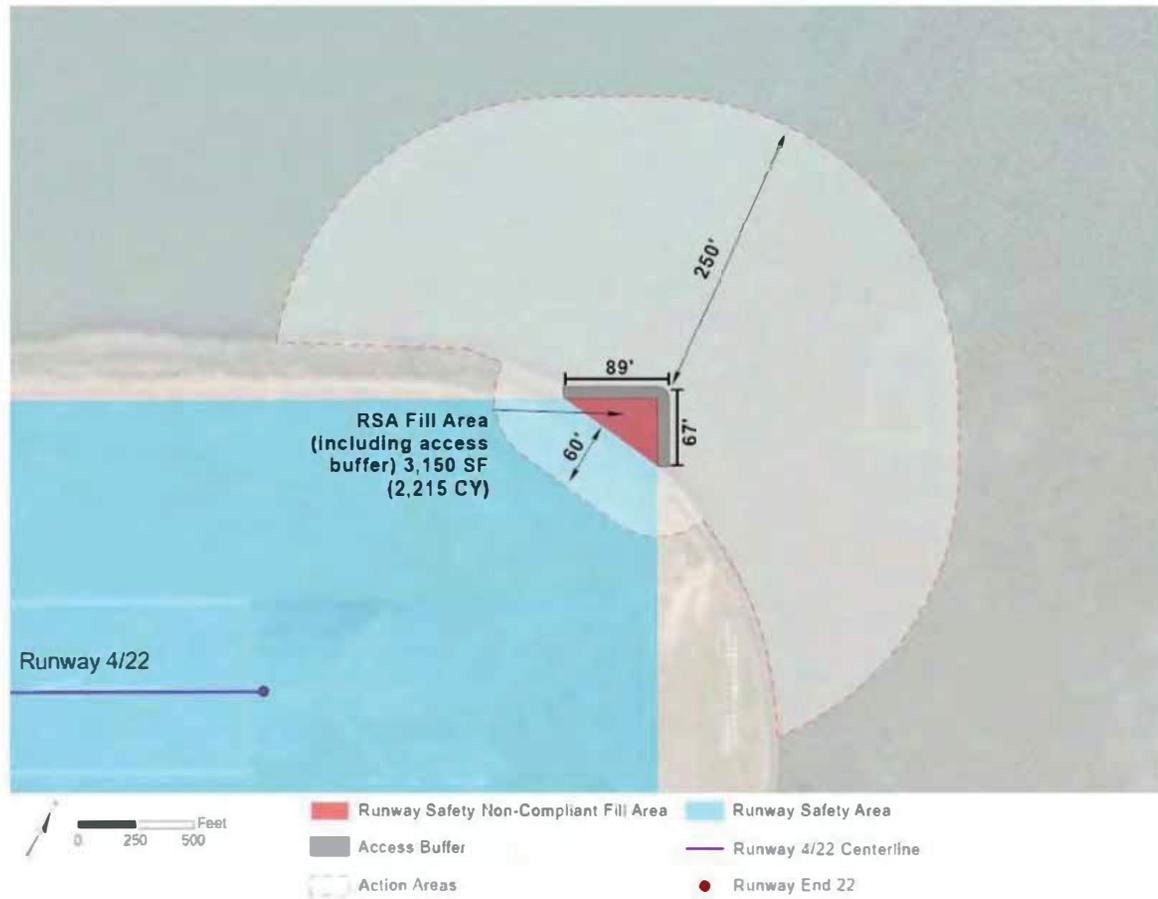


Figure 1: Runway Safety Area Fill and Construction Buffer

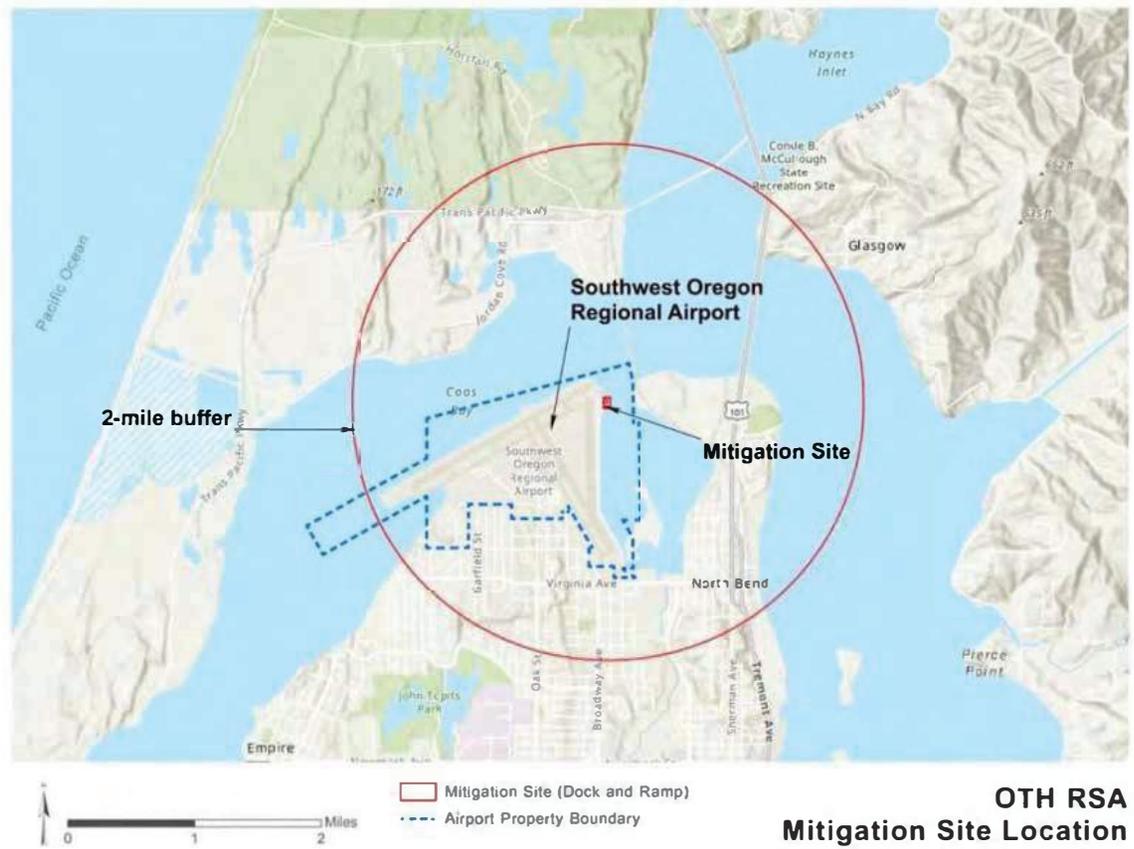


Figure 2: OTH RSA Mitigation Site Location

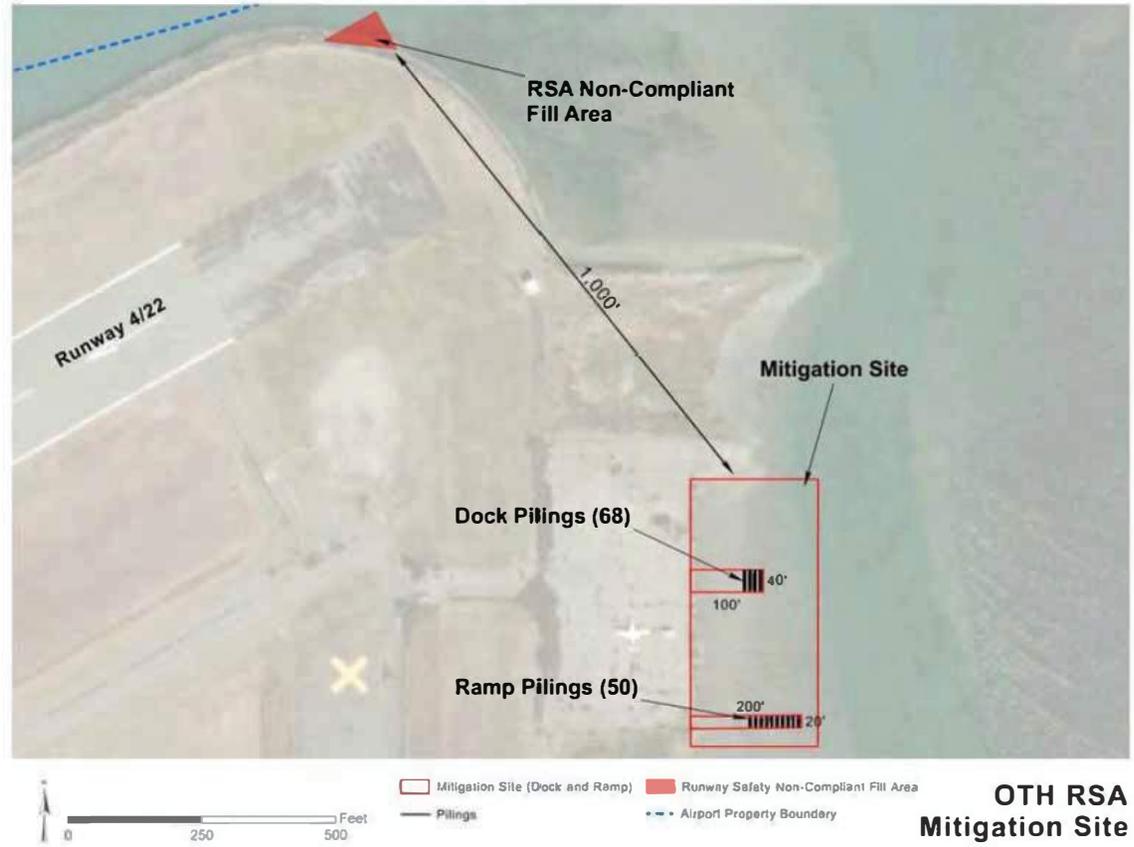


Figure 3: OTH RSA Mitigation Site



US Army Corps
of Engineers®
Portland District

Nationwide Permit 14

Terms and Conditions

Effective Date: March 19, 2017

-
- A. Description of Activities Authorized by Nationwide Permit 14
 - B. Nationwide Permit General Conditions
 - C. District Engineer's Decision
 - D. Further Information
 - E. Portland District Regional Conditions
-

In addition to any special conditions that may be required on a case-by-case basis by the District Engineer, the following terms and conditions must be met, as applicable, for a Nationwide Permit authorization to be valid in Oregon.

A. Description of Activities Authorized by Nationwide Permit (NWP) 14

14. *Linear Transportation Projects.* Activities required for crossings of waters of the United States associated with the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) The loss of waters of the United States exceeds 1/10-acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 32.)

(Authorities: Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act)

Note 1: For linear transportation projects crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Linear transportation projects must comply with 33 CFR 330.6(d).

Note 2: Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under section 404(f) of the Clean Water Act (see 33 CFR 323.4).

Note 3: For NWP 14 activities that require pre-construction notification, the PCN must include any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings that require Department of the Army authorization but do not require pre-construction notification (see paragraph (b) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, "District Engineer's Decision." The district engineer may require mitigation to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

B. NWP General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/ or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation.

(a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. *Aquatic Life Movements.* No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.
3. *Spawning Areas.* Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.
4. *Migratory Bird Breeding Areas.* Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.
5. *Shellfish Beds.* No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.
6. *Suitable Material.* No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).
7. *Water Supply Intakes.* No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.
8. *Adverse Effects From Impoundments.* If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.
9. *Management of Water Flows.* To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).
10. *Fills Within 100-Year Floodplains.* The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. *Equipment.* Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. *Soil Erosion and Sediment Controls.* Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. *Removal of Temporary Fills.* Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. *Proper Maintenance.* Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. *Single and Complete Project.* The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. *Wild and Scenic Rivers.*

(a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. The permittee shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

17. *Tribal Rights.* No NWP activity may cause more than minimal adverse effects on tribal rights (including treaty rights), protected tribal resources, or tribal lands.

18. *Endangered Species.*

(a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless ESA section 7 consultation addressing the effects of the proposed activity has been completed. Direct effects are the immediate effects on listed species and critical habitat caused by the NWP activity. Indirect effects are those effects on listed species and critical habitat that are caused by the NWP activity and are later in time, but still are reasonably certain to occur.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. If pre- construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed activity or that utilize the designated critical habitat that might be affected by the proposed activity. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have “no effect” on listed species or critical habitat, or until ESA section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any

person subject to the jurisdiction of the United States to take a listed species, where “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take” means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide Web pages at <http://www.fws.gov/> or [http:// www.fws.gov/ipac](http://www.fws.gov/ipac) and [http:// and www.nmfs.noaa.gov/pr/species/esa/](http://www.nmfs.noaa.gov/pr/species/esa/) respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring their action complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory birds or eagles, including whether “incidental take” permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties.

(a) In cases where the district engineer determines that the activity may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act. If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional

consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect. Where the non-Federal applicant has identified historic properties on which the activity might have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed.

(d) For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance

despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/ THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWP 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWP 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the

district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation to ensure that the activity results in no more than minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. Restored riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f)).

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. *Safety of Impoundment Structures.* To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. *Water Quality.* Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. *Coastal Zone Management.* In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. *Regional and Case-By-Case Conditions.* The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. *Use of Multiple Nationwide Permits.* The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. *Transfer of Nationwide Permit Verifications.* If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities

associated with compliance with its terms and conditions, have the transferee sign and date below.

(Transferee)

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission is not authorized by NWP until the appropriate Corps office issues the section 408 permission to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification.

(a) *Timing.* Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will

notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures. For single and complete linear projects, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other

waters. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-Federal permittees, if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed activity or utilize the designated critical habitat that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-Federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an activity that requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification:* The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly

indicate that it is an NWP PCN and must include all of the applicable information required in paragraphs (b)(1) through (10) of this general condition. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination:*

(1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) All NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of stream bed; (iii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iv) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or email that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the preconstruction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of preconstruction notifications to expedite agency coordination.

C. District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the individual crossings of waters of the United States to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51, 52, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects. For those NWPs that have a waivable 300 linear foot limit for losses of intermittent and ephemeral stream bed and a 1/2-acre limit (i.e., NWPs 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52), the loss of intermittent and ephemeral stream bed, plus any other losses of jurisdictional waters and wetlands, cannot exceed 1/2- acre.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters (e.g., streams). The district engineer will consider any proposed compensatory mitigation or other mitigation

measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) That the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31, or to evaluate PCNs for activities authorized by NWPs 21, 49, and 50), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

D. Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

E. Portland District Regional Conditions

Note: The following Nationwide Permit (NWP) regional conditions are for the State of Oregon. Regional conditions are placed on NWPs to ensure projects result in no more than minimal adverse impacts to the aquatic environment and to address local resource concerns.

1. *Notification:* For permittees that received written NWP approval, upon starting the authorized activities, you shall notify the U.S. Army Corps of Engineers, Portland District, Regulatory Branch that the work has started. Notification shall be provided by e-mail to cenwp.notify@usace.army.mil and the email subject line shall include: Corps project number and the project location by county.
2. *Aquatic Resources of Special Concern:* Pre-construction notification to the District Engineer is required for all activities proposed in waters of the U.S. within an aquatic resource of special concern. Aquatic resources of special concern are resources that are difficult to replace, unique, and/or have high ecological function. For the purpose of this regional condition, aquatic resources of special concern are native eel grass (*Zostera marina*) beds, mature forested wetlands, bogs, fens, vernal pools, alkali wetlands, wetlands in dunal systems along the Oregon coast, estuarine wetlands, Willamette Valley wet prairie wetlands, marine gardens, marine reserves, kelp beds, and rocky substrate in tidal waters.

In addition to the content requirements of NWP General Condition (GC) 32, the pre-construction notification must include a statement explaining why the effects of the proposed activity are no more than minimal. Written approval from the District Engineer must be obtained prior to commencing work.

Note: If the District Engineer determines that the adverse effects of the proposed activity are more than minimal, then the District Engineer will notify the applicant that either:

- (a) the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) the activity is authorized under the NWP subject to submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (c) the activity is authorized under the NWP with specific modifications or conditions.

3. *Cultural Resources and Human Burials-Inadvertent Discovery Plan:* In addition to the requirements in NWP GCs 20 and 21, the permittee shall immediately notify the District Engineer if, at any time during the course of the work authorized, human burials, cultural items, or historic properties, as defined by the National Historic Preservation Act

and Native American Graves Protection and Repatriation Act, are discovered. The permittee shall implement the following procedures:

a. Immediately cease all ground disturbing activities.

b. Notify the Portland District Engineer as soon as possible following discovery but in no case later than 24 hours. Notification may be sent by fax (503-808-4375) or electronically (cenwp.notify@usace.army.mil) and shall identify the Corps project number and clearly specify the purpose is to report a cultural resource discovery. The permittee shall also notify the Corps representative (by email and telephone) identified in the verification letter.

c. Notify the Oregon State Historic Preservation Office by telephone at (503) 986-0690.

Failure to stop work immediately and until such time as the District Engineer has coordinated with all appropriate agencies and Native American tribes, and complied with the provisions of 33 CFR 325 (Appendix C), the National Historic Preservation Act, Native American Graves Protection and Repatriation Act, and other pertinent regulations could result in violation of state and federal laws. Violators may be subject to civil and criminal penalties.

4. *In-water Work*: To minimize potential impacts to aquatic species and habitat, in-water work will be limited by the following timing considerations:

a. Permittee shall complete all in-water work, to the maximum extent practicable, within the preferred time period (i.e., work window) specified in Oregon Department of Fish and Wildlife's (ODFW) "Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources," June 2008, or most current version, available at: <http://www.dfw.state.or.us/lands/inwater/>.

b. If work cannot be completed within the preferred timing window, despite every attempt to do so, permittee shall submit a written request to work outside of the preferred window to the District Engineer. The request can be made by means of the joint-agency In-water Work Period Variance Request for Previously Permitted Authorizations form which can be found at <http://www.oregon.gov/dsl/WW/Pages/WWforms.aspx>. Permittee shall not begin any in-water work outside of the preferred window until they have received written approval from the District Engineer.

Note: The final specified in-water work period will be based on a project-specific evaluation and may supersede these guidelines through special conditions of the permit verification.

5. *Essential Fish Habitat*: Activities which may adversely affect essential fish habitat, as defined under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), are not authorized by NWP until essential fish habitat requirements have been met by the applicant and the Corps. Non-federal permittees must submit a pre-

construction notification to the District Engineer if essential fish habitat may be affected by, or is in the vicinity of, a proposed activity and shall not begin work until notified by the District Engineer that the requirements of the essential fish habitat provisions of the MSA have been satisfied and the activity is authorized. The notification must identify the type(s) of essential fish habitat (e.g., Pacific coast salmon, Pacific coast groundfish, and/or Coastal-pelagic species) managed by a Fishery Management Plan that may be affected. Information about essential fish habitat is available at NOAA's website: <http://www.westcoast.fisheries.noaa.gov/>.

6. *Bank Stabilization:* Permittee shall include the use of bioengineering techniques and natural materials in the project design to the maximum extent practicable and shall minimize the use of rock. Bioengineering bank stabilization techniques are those that increase the strength and structure of soils with a combination of biological and mechanical elements (e.g., vegetation, root wads and woody debris, rock structures). Riparian plantings shall be included in all project designs unless the permittee can demonstrate that such plantings are not practicable.

7. *Fish Screening:* To prevent injury or mortality to fish due to entrainment, the permittee shall ensure that all intake pipes include adequately sized screens.

Note: Fish passage and screening criteria can be obtained from the National Marine Fisheries Service (NMFS) at http://www.westcoast.fisheries.noaa.gov/fish_passage/solutions/index.html. Information regarding Oregon's fish passage laws can be obtained from ODFW at <http://www.dfw.state.or.us/fish/passage/links.asp>.

8. *Work Area Isolation and Dewatering:* Appropriate best management practices shall be implemented to prevent erosion and to prevent sediments from entering waters of the U.S.

a. All in-water work shall be isolated from the active channel or conducted during low seasonal stream flows to the maximum extent practicable.

b. Cofferdams shall be constructed of non-erosive material, such as concrete jersey barriers, sand and gravel bag dams, or water bladders. Constructing a cofferdam by pushing material from the streambed or sloughing material from the streambanks is not authorized.

c. Sand and gravel bag dams shall be lined with a plastic liner or geotextile fabric to reduce permeability and prevent sediments and/or construction materials from entering waters of the U.S.

d. Upstream and downstream flows shall be maintained by routing flows around the construction site.

e. When dewatering is necessary for construction, a sediment basin, or other applicable method, shall be used to settle sediments prior to releasing the water back

into the waterbody. Settled water shall be returned to the waterbody in such a manner as to avoid erosion. Sediment basins shall be placed in uplands.

f. Fish and other aquatic species must be salvaged (i.e., safely captured and relocated away from the project or development site) prior to dewatering.

Note: The ODFW requires a Scientific Take Permit be obtained to salvage fish and wildlife. Further information from ODFW is available at http://www.dfw.state.or.us/fish/license_permits_apps/scientific_taking_permit.asp.

9. *Dredging:* For NWP-authorized activities that involve removal of sediment from waters of the U.S., the permittee shall ensure that any necessary sediment characterization regarding size, composition, and potential contaminants is conducted prior to dredging. Sediment characterization must be conducted per the Sediment Evaluation Framework for the Pacific Northwest (available at: <http://www.nwp.usace.army.mil/Missions/Environment/DMM.aspx>).

Note 1: The return water from a contained disposal area is defined as a discharge of dredged material by 33 CFR Part 323.2(d) and requires separate authorization from the District Engineer (e.g., by NWP 16).

Note 2: The Oregon Department of Environmental Quality (DEQ) requires removed material placed in an upland site to meet the definitions of clean fill as provided in OAR 340-093-0030 or the use must be specifically allowed by DEQ by rule, permit, or other authorization.

10. *Mechanized Equipment:* In addition to the requirements in NWP GC 11, permittee shall implement the following practices to prevent or minimize impacts to the aquatic environment from mechanized equipment:

a. Use existing roads, paths, and construction pads where available. Temporary mats or pads, when required to provide access onto wetlands or tidal flats, shall be removed within 30 days of completing the authorized work.

b. Operate equipment from the top of a streambank and conduct work outside of the active stream channel, unless specifically authorized by the District Engineer.

c. Equipment shall not be staged, fueled, or maintained within waters of the U.S.

d. Spill prevention and containment materials shall be maintained and be readily accessible at vehicle staging areas. The amount of spill response materials (such as straw matting/bales, geotextiles, booms, diapers, and other absorbent materials, shovels, brooms, and containment bags) maintained on-site must be appropriate for the size of the authorized activity.

11. *Stormwater Management:* Pre-construction notification to the District Engineer is required for all activities resulting in the creation of new impervious surfaces if any species or designated critical habitat listed under the Endangered Species Act (ESA)

might be affected or are in the vicinity of the activity. The Corps may require a post-construction stormwater management plan (SWMP) and completion of a supplemental Stormwater Information Form to assist in the determination of the activity's affects to listed species or designated critical habitat and to be used in ESA consultation as necessary.

Note 1: The Corps considers impervious surfaces to include roof tops, walkways, patios, driveways, parking or storage areas, concrete or asphalt paving, gravel roads, packed earthen material, and oiled surfaces.

Note 2: Under the DEQ 401 Water Quality Certification Program, the DEQ evaluates post-construction stormwater pollution for any project resulting in new, an increase in, or redevelopment of impervious surfaces. DEQ may require the applicant to submit a post-construction SWMP for review and approval prior to the start of construction. DEQ provides information on preparing a SWMP at <http://www.deq.state.or.us/wq/sec401cert/docs/stormwaterGuidelines.pdf>. DEQ requires applicants to first consider low impact development options. If these options can't be implemented, a narrative must be provided explaining why.

12. *Erosion Control:* During construction and until the site is stabilized, the permittee shall ensure all practicable measures are implemented and maintained to prevent erosion and runoff. Temporary stockpiles of excavated or dredged material shall be stabilized to prevent erosion. Once soils or slopes have been stabilized, permittee shall completely remove and properly dispose of or re-use all non-biodegradable components of installed control measures.

Note: DEQ provides information on erosion and sediment control measures at <http://www.deq.state.or.us/wq/wqpermit/docs/general/npdes1200c/ErosionSedimentControl.pdf>. Details on best management practices are found at <http://www.deq.state.or.us/wq/wqpermit/docs/general/npdes1200c/BMPManual.pdf>.

13. *Temporary Fills and Impacts:* To ensure no more than minimal adverse environmental effects from temporary fills and impacts to waters of the U.S:

a. Temporary fills and/or impacts to waters of the U.S. shall not exceed six months unless otherwise approved by the District Engineer.

b. No more than one-half ($\frac{1}{2}$) acre of waters of the U.S. may be temporarily filled or impacted unless otherwise approved by the District Engineer (temporary fills and impacts do not affect specified limits for loss of waters associated with specific nationwide permits).

c. Native soils and/or sediments removed from waters of the U.S. for project construction shall be stockpiled and used for site restoration to the maximum extent practicable.

d. Site restoration of temporarily filled or impacted areas shall include returning the area to pre-project ground surface contours. The permittee shall appropriately

revegetate temporarily filled or impacted areas with native, noninvasive herbs, shrubs, and/or tree species sufficient in number, spacing, and diversity to replace affected aquatic functions.

Note: The Corps will determine compensatory mitigation requirements for temporary fills and impacts on a case-by-case basis depending on the duration and nature of the temporary fill or impact and the type of aquatic resource affected.

14. *Contractor Notification of Permit Requirements:* The permittee must provide a copy of the nationwide permit verification letter, conditions, and permit drawings to all contractors and any other parties performing the authorized work, prior to the commencement of any work in waters of the U.S.

15. *Inspection of the Project Site:* The permittee shall allow representatives of the District Engineer to inspect the authorized activity to confirm compliance with nationwide permit terms and conditions. A request for access to the site will normally be made sufficiently in advance to allow a property owner or representative the option to be on site during the inspection.



US Army Corps
of Engineers®
Portland District

Nationwide Permit 27

Terms and Conditions

Effective Date: March 19, 2017

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- A. Description of Activities Authorized by Nationwide Permit 27
 - B. Nationwide Permit General Conditions
 - C. District Engineer's Decision
 - D. Further Information
 - E. Portland District Regional Conditions
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In addition to any special conditions that may be required on a case-by-case basis by the District Engineer, the following terms and conditions must be met, as applicable, for a Nationwide Permit authorization to be valid in Oregon.

A. Description of Activities Authorized by Nationwide Permit (NWP) 27

27. Aquatic Habitat Restoration, Enhancement, and Establishment Activities. Activities in waters of the United States associated with the restoration, enhancement, and establishment of tidal and non-tidal wetlands and riparian areas, the restoration and enhancement of non-tidal streams and other non-tidal open waters, and the rehabilitation or enhancement of tidal streams, tidal wetlands, and tidal open waters, provided those activities result in net increases in aquatic resource functions and services.

To be authorized by this NWP, the aquatic habitat restoration, enhancement, or establishment activity must be planned, designed, and implemented so that it results in aquatic habitat that resembles an ecological reference. An ecological reference may be based on the characteristics of an intact aquatic habitat or riparian area of the same type that exists in the region. An ecological reference may be based on a conceptual model developed from regional ecological knowledge of the target aquatic habitat type or riparian area.

To the extent that a Corps permit is required, activities authorized by this NWP include, but are not limited to: The removal of accumulated sediments; the installation, removal, and maintenance of small water control structures, dikes, and berms, as well as discharges of dredged or fill material to restore appropriate stream channel configurations after small water control structures, dikes, and berms, are removed; the installation of current deflectors; the enhancement, rehabilitation, or re-establishment of riffle and pool stream structure; the placement of in-stream habitat structures; modifications of the stream bed and/or banks to enhance, rehabilitate, or re-establish stream meanders; the removal of stream barriers, such as undersized culverts, fords, and grade control structures; the backfilling of artificial channels; the removal of existing drainage structures, such as drain tiles, and the filling, blocking, or reshaping of drainage ditches to restore wetland hydrology; the installation of structures or fills necessary to restore or enhance wetland or stream hydrology; the construction of small

nesting islands; the construction of open water areas; the construction of oyster habitat over unvegetated bottom in tidal waters; shellfish seeding; activities needed to reestablish vegetation, including plowing or discing for seed bed preparation and the planting of appropriate wetland species; re-establishment of submerged aquatic vegetation in areas where those plant communities previously existed; re-establishment of tidal wetlands in tidal waters where those wetlands previously existed; mechanized land clearing to remove non-native invasive, exotic, or nuisance vegetation; and other related activities. Only native plant species should be planted at the site.

This NWP authorizes the relocation of non-tidal waters, including non-tidal wetlands and streams, on the project site provided there are net increases in aquatic resource functions and services.

Except for the relocation of non-tidal waters on the project site, this NWP does not authorize the conversion of a stream or natural wetlands to another aquatic habitat type (e.g., the conversion of a stream to wetland or vice versa) or uplands. Changes in wetland plant communities that occur when wetland hydrology is more fully restored during wetland rehabilitation activities are not considered a conversion to another aquatic habitat type. This NWP does not authorize stream channelization. This NWP does not authorize the relocation of tidal waters or the conversion of tidal waters, including tidal wetlands, to other aquatic uses, such as the conversion of tidal wetlands into open water impoundments.

Compensatory mitigation is not required for activities authorized by this NWP since these activities must result in net increases in aquatic resource functions and services.

Reversion. For enhancement, restoration, and establishment activities conducted: (1) In accordance with the terms and conditions of a binding stream or wetland enhancement or restoration agreement, or a wetland establishment agreement, between the landowner and the U.S. Fish and Wildlife Service (FWS), the Natural Resources Conservation Service (NRCS), the Farm Service Agency (FSA), the National Marine Fisheries Service (NMFS), the National Ocean Service (NOS), U.S. Forest Service (USFS), or their designated state cooperating agencies; (2) as voluntary wetland restoration, enhancement, and establishment actions documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or (3) on reclaimed surface coal mine lands, in accordance with a Surface Mining Control and Reclamation Act permit issued by the Office of Surface Mining Reclamation and Enforcement (OSMRE) or the applicable state agency, this NWP also authorizes any future discharge of dredged or fill material associated with the reversion of the area to its documented prior condition and use (i.e., prior to the restoration, enhancement, or establishment activities). The reversion must occur within five years after expiration of a limited term wetland restoration or establishment agreement or permit, and is authorized in these circumstances even if the discharge occurs after this NWP expires. The five-year reversion limit does not apply to agreements without time limits reached between the landowner and the FWS, NRCS, FSA, NMFS, NOS, USFS, or an appropriate state cooperating agency. This NWP also

authorizes discharges of dredged or fill material in waters of the United States for the reversion of wetlands that were restored, enhanced, or established on prior-converted cropland or on uplands, in accordance with a binding agreement between the landowner and NRCS, FSA, FWS, or their designated state cooperating agencies (even though the restoration, enhancement, or establishment activity did not require a section 404 permit). The prior condition will be documented in the original agreement or permit, and the determination of return to prior conditions will be made by the Federal agency or appropriate state agency executing the agreement or permit. Before conducting any reversion activity the permittee or the appropriate Federal or state agency must notify the district engineer and include the documentation of the prior condition. Once an area has reverted to its prior physical condition, it will be subject to whatever the Corps Regulatory requirements are applicable to that type of land at the time. The requirement that the activity results in a net increase in aquatic resource functions and services does not apply to reversion activities meeting the above conditions. Except for the activities described above, this NWP does not authorize any future discharge of dredged or fill material associated with the reversion of the area to its prior condition. In such cases a separate permit would be required for any reversion.

Reporting. For those activities that do not require pre-construction notification, the permittee must submit to the district engineer a copy of: (1) The binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement, or a project description, including project plans and location map; (2) the NRCS or USDA Technical Service Provider documentation for the voluntary stream enhancement or restoration action or wetland restoration, enhancement, or establishment action; or (3) the SMCRA permit issued by OSMRE or the applicable state agency. The report must also include information on baseline ecological conditions on the project site, such as a delineation of wetlands, streams, and/or other aquatic habitats. These documents must be submitted to the district engineer at least 30 days prior to commencing activities in waters of the United States authorized by this NWP.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing any activity (see general condition 32), except for the following activities:

- (1) Activities conducted on non-Federal public lands and private lands, in accordance with the terms and conditions of a binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement between the landowner and the FWS, NRCS, FSA, NMFS, NOS, USFS or their designated state cooperating agencies;
- (2) Voluntary stream or wetland restoration or enhancement action, or wetland establishment action, documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or
- (3) The reclamation of surface coal mine lands, in accordance with an SMCRA permit issued by the OSMRE or the applicable state agency.

However, the permittee must submit a copy of the appropriate documentation to the district engineer to fulfill the reporting requirement.

(Authorities: Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act)

Note: This NWP can be used to authorize compensatory mitigation projects, including mitigation banks and in-lieu fee projects. However, this NWP does not authorize the reversion of an area used for a compensatory mitigation project to its prior condition, since compensatory mitigation is generally intended to be permanent.

B. NWP General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/ or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation.

(a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. *Spawning Areas.* Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.
4. *Migratory Bird Breeding Areas.* Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.
5. *Shellfish Beds.* No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.
6. *Suitable Material.* No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).
7. *Water Supply Intakes.* No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.
8. *Adverse Effects From Impoundments.* If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.
9. *Management of Water Flows.* To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).
10. *Fills Within 100-Year Floodplains.* The activity must comply with applicable FEMA-approved state or local floodplain management requirements.
11. *Equipment.* Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.
12. *Soil Erosion and Sediment Controls.* Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. *Removal of Temporary Fills.* Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. *Proper Maintenance.* Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. *Single and Complete Project.* The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. *Wild and Scenic Rivers.*

(a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. The permittee shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

17. *Tribal Rights.* No NWP activity may cause more than minimal adverse effects on tribal rights (including treaty rights), protected tribal resources, or tribal lands.

18. *Endangered Species.*

(a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless ESA section 7 consultation addressing the effects of the

proposed activity has been completed. Direct effects are the immediate effects on listed species and critical habitat caused by the NWP activity. Indirect effects are those effects on listed species and critical habitat that are caused by the NWP activity and are later in time, but still are reasonably certain to occur.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed activity or that utilize the designated critical habitat that might be affected by the proposed activity. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have “no effect” on listed species or critical habitat, or until ESA section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take” means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this

general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide Web pages at <http://www.fws.gov/> or [http:// www.fws.gov/ipac](http://www.fws.gov/ipac) and [http:// and www.nmfs.noaa.gov/pr/species/esa/](http://www.nmfs.noaa.gov/pr/species/esa/) respectively.

19. *Migratory Birds and Bald and Golden Eagles.* The permittee is responsible for ensuring their action complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory birds or eagles, including whether “incidental take” permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. *Historic Properties.*

(a) In cases where the district engineer determines that the activity may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act. If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre- construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation

Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect. Where the non-Federal applicant has identified historic properties on which the activity might have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed.

(d) For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/ THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while

accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation to ensure that the activity results in no more than minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream

rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. Restored riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f)).

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. *Safety of Impoundment Structures.* To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. *Water Quality.* Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(Transferee)

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer.

The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

- (a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;
- (b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and
- (c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission is not authorized by NWP until the appropriate Corps office issues the section 408 permission to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification.

(a) *Timing.* Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

- (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or
- (2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no

effect” on listed species or “no potential to cause effects” on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWP 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee’s right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information:

- (1) Name, address and telephone numbers of the prospective permittee;
- (2) Location of the proposed activity;
- (3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;
- (4) A description of the proposed activity; the activity’s purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures. For single and complete linear projects, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45 day period

will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-Federal permittees, if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed activity or utilize the designated critical habitat that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-Federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an activity that requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification:* The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is an NWP PCN and must include all of the applicable information required in paragraphs (b)(1) through (10) of this general condition. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination:*

(1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) All NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the

United States; (ii) NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of stream bed; (iii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iv) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or email that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the preconstruction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of preconstruction notifications to expedite agency coordination.

C. District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this

determination will include an evaluation of the individual crossings of waters of the United States to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51, 52, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects. For those NWPs that have a waivable 300 linear foot limit for losses of intermittent and ephemeral stream bed and a 1/2-acre limit (i.e., NWPs 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52), the loss of intermittent and ephemeral stream bed, plus any other losses of jurisdictional waters and wetlands, cannot exceed 1/2- acre.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters (e.g., streams). The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the

district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) That the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31, or to evaluate PCNs for activities authorized by NWPs 21, 49, and 50), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

D. Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

E. Portland District Regional Conditions

Note: The following Nationwide Permit (NWP) regional conditions are for the State of Oregon. Regional conditions are placed on NWPs to ensure projects result in no more than minimal adverse impacts to the aquatic environment and to address local resource concerns.

1. *Notification:* For permittees that received written NWP approval, upon starting the authorized activities, you shall notify the U.S. Army Corps of Engineers, Portland

District, Regulatory Branch that the work has started. Notification shall be provided by e-mail to cenwp.notify@usace.army.mil and the email subject line shall include: Corps project number and the project location by county.

2. *Aquatic Resources of Special Concern:* Pre-construction notification to the District Engineer is required for all activities proposed in waters of the U.S. within an aquatic resource of special concern. Aquatic resources of special concern are resources that are difficult to replace, unique, and/or have high ecological function. For the purpose of this regional condition, aquatic resources of special concern are native eel grass (*Zostera marina*) beds, mature forested wetlands, bogs, fens, vernal pools, alkali wetlands, wetlands in dunal systems along the Oregon coast, estuarine wetlands, Willamette Valley wet prairie wetlands, marine gardens, marine reserves, kelp beds, and rocky substrate in tidal waters.

In addition to the content requirements of NWP General Condition (GC) 32, the pre-construction notification must include a statement explaining why the effects of the proposed activity are no more than minimal. Written approval from the District Engineer must be obtained prior to commencing work.

Note: If the District Engineer determines that the adverse effects of the proposed activity are more than minimal, then the District Engineer will notify the applicant that either:

(a) the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) the activity is authorized under the NWP subject to submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (c) the activity is authorized under the NWP with specific modifications or conditions.

3. *Cultural Resources and Human Burials-Inadvertent Discovery Plan:* In addition to the requirements in NWP GCs 20 and 21, the permittee shall immediately notify the District Engineer if, at any time during the course of the work authorized, human burials, cultural items, or historic properties, as defined by the National Historic Preservation Act and Native American Graves Protection and Repatriation Act, are discovered. The permittee shall implement the following procedures:

a. Immediately cease all ground disturbing activities.

b. Notify the Portland District Engineer as soon as possible following discovery but in no case later than 24 hours. Notification may be sent by fax (503-808-4375) or electronically (cenwp.notify@usace.army.mil) and shall identify the Corps project number and clearly specify the purpose is to report a cultural resource discovery. The permittee shall also notify the Corps representative (by email and telephone) identified in the verification letter.

c. Notify the Oregon State Historic Preservation Office by telephone at (503) 986-0690.

Failure to stop work immediately and until such time as the District Engineer has coordinated with all appropriate agencies and Native American tribes, and complied with the provisions of 33 CFR 325 (Appendix C), the National Historic Preservation Act, Native American Graves Protection and Repatriation Act, and other pertinent regulations could result in violation of state and federal laws. Violators may be subject to civil and criminal penalties.

4. *In-water Work:* To minimize potential impacts to aquatic species and habitat, in-water work will be limited by the following timing considerations:

a. Permittee shall complete all in-water work, to the maximum extent practicable, within the preferred time period (i.e., work window) specified in Oregon Department of Fish and Wildlife's (ODFW) "Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources," June 2008, or most current version, available at: <http://www.dfw.state.or.us/lands/inwater/>.

b. If work cannot be completed within the preferred timing window, despite every attempt to do so, permittee shall submit a written request to work outside of the preferred window to the District Engineer. The request can be made by means of the joint-agency In-water Work Period Variance Request for Previously Permitted Authorizations form which can be found at <http://www.oregon.gov/dsl/WW/Pages/WWforms.aspx>. Permittee shall not begin any in-water work outside of the preferred window until they have received written approval from the District Engineer.

Note: The final specified in-water work period will be based on a project-specific evaluation and may supersede these guidelines through special conditions of the permit verification.

5. *Essential Fish Habitat:* Activities which may adversely affect essential fish habitat, as defined under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), are not authorized by NWP until essential fish habitat requirements have been met by the applicant and the Corps. Non-federal permittees must submit a pre-construction notification to the District Engineer if essential fish habitat may be affected by, or is in the vicinity of, a proposed activity and shall not begin work until notified by the District Engineer that the requirements of the essential fish habitat provisions of the MSA have been satisfied and the activity is authorized. The notification must identify the type(s) of essential fish habitat (e.g., Pacific coast salmon, Pacific coast groundfish, and/or Coastal-pelagic species) managed by a Fishery Management Plan that may be affected. Information about essential fish habitat is available at NOAA's website: <http://www.westcoast.fisheries.noaa.gov/>.

6. *Bank Stabilization:* Permittee shall include the use of bioengineering techniques and natural materials in the project design to the maximum extent practicable and shall minimize the use of rock. Bioengineering bank stabilization techniques are those that increase the strength and structure of soils with a combination of biological and mechanical elements (e.g., vegetation, root wads and woody debris, rock structures).

Riparian plantings shall be included in all project designs unless the permittee can demonstrate that such plantings are not practicable.

7. *Fish Screening*: To prevent injury or mortality to fish due to entrainment, the permittee shall ensure that all intake pipes include adequately sized screens.

Note: Fish passage and screening criteria can be obtained from the National Marine Fisheries Service (NMFS) at http://www.westcoast.fisheries.noaa.gov/fish_passage/solutions/index.html. Information regarding Oregon's fish passage laws can be obtained from ODFW at <http://www.dfw.state.or.us/fish/passage/links.asp>.

8. *Work Area Isolation and Dewatering*: Appropriate best management practices shall be implemented to prevent erosion and to prevent sediments from entering waters of the U.S.

a. All in-water work shall be isolated from the active channel or conducted during low seasonal stream flows to the maximum extent practicable.

b. Cofferdams shall be constructed of non-erosive material, such as concrete jersey barriers, sand and gravel bag dams, or water bladders. Constructing a cofferdam by pushing material from the streambed or sloughing material from the streambanks is not authorized.

c. Sand and gravel bag dams shall be lined with a plastic liner or geotextile fabric to reduce permeability and prevent sediments and/or construction materials from entering waters of the U.S.

d. Upstream and downstream flows shall be maintained by routing flows around the construction site.

e. When dewatering is necessary for construction, a sediment basin, or other applicable method, shall be used to settle sediments prior to releasing the water back into the waterbody. Settled water shall be returned to the waterbody in such a manner as to avoid erosion. Sediment basins shall be placed in uplands.

f. Fish and other aquatic species must be salvaged (i.e., safely captured and relocated away from the project or development site) prior to dewatering.

Note: The ODFW requires a Scientific Take Permit be obtained to salvage fish and wildlife. Further information from ODFW is available at http://www.dfw.state.or.us/fish/license_permits_apps/scientific_taking_permit.asp.

9. *Dredging*: For NWP-authorized activities that involve removal of sediment from waters of the U.S., the permittee shall ensure that any necessary sediment characterization regarding size, composition, and potential contaminants is conducted prior to dredging. Sediment characterization must be conducted per the Sediment

Evaluation Framework for the Pacific Northwest (available at: <http://www.nwp.usace.army.mil/Missions/Environment/DMM.aspx>).

Note 1: The return water from a contained disposal area is defined as a discharge of dredged material by 33 CFR Part 323.2(d) and requires separate authorization from the District Engineer (e.g., by NWP 16).

Note 2: The Oregon Department of Environmental Quality (DEQ) requires removed material placed in an upland site to meet the definitions of clean fill as provided in OAR 340-093-0030 or the use must be specifically allowed by DEQ by rule, permit, or other authorization.

10. *Mechanized Equipment:* In addition to the requirements in NWP GC 11, permittee shall implement the following practices to prevent or minimize impacts to the aquatic environment from mechanized equipment:

a. Use existing roads, paths, and construction pads where available. Temporary mats or pads, when required to provide access onto wetlands or tidal flats, shall be removed within 30 days of completing the authorized work.

b. Operate equipment from the top of a streambank and conduct work outside of the active stream channel, unless specifically authorized by the District Engineer.

c. Equipment shall not be staged, fueled, or maintained within waters of the U.S.

d. Spill prevention and containment materials shall be maintained and be readily accessible at vehicle staging areas. The amount of spill response materials (such as straw matting/bales, geotextiles, booms, diapers, and other absorbent materials, shovels, brooms, and containment bags) maintained on-site must be appropriate for the size of the authorized activity.

11. *Stormwater Management:* Pre-construction notification to the District Engineer is required for all activities resulting in the creation of new impervious surfaces if any species or designated critical habitat listed under the Endangered Species Act (ESA) might be affected or are in the vicinity of the activity. The Corps may require a post-construction stormwater management plan (SWMP) and completion of a supplemental Stormwater Information Form to assist in the determination of the activity's affects to listed species or designated critical habitat and to be used in ESA consultation as necessary.

Note 1: The Corps considers impervious surfaces to include roof tops, walkways, patios, driveways, parking or storage areas, concrete or asphalt paving, gravel roads, packed earthen material, and oiled surfaces.

Note 2: Under the DEQ 401 Water Quality Certification Program, the DEQ evaluates post-construction stormwater pollution for any project resulting in new, an increase in, or redevelopment of impervious surfaces. DEQ may require the applicant to submit a post-construction SWMP for review and approval prior to the start of construction. DEQ provides information on preparing a SWMP at

<http://www.deq.state.or.us/wq/sec401cert/docs/stormwaterGuidelines.pdf>. DEQ requires applicants to first consider low impact development options. If these options can't be implemented, a narrative must be provided explaining why.

12. *Erosion Control*: During construction and until the site is stabilized, the permittee shall ensure all practicable measures are implemented and maintained to prevent erosion and runoff. Temporary stockpiles of excavated or dredged material shall be stabilized to prevent erosion. Once soils or slopes have been stabilized, permittee shall completely remove and properly dispose of or re-use all non-biodegradable components of installed control measures.

Note: DEQ provides information on erosion and sediment control measures at <http://www.deq.state.or.us/wq/wqpermit/docs/general/npdes1200c/ErosionSedimentControl.pdf>. Details on best management practices are found at <http://www.deq.state.or.us/wq/wqpermit/docs/general/npdes1200c/BMPManual.pdf>.

13. *Temporary Fills and Impacts*: To ensure no more than minimal adverse environmental effects from temporary fills and impacts to waters of the U.S:

a. Temporary fills and/or impacts to waters of the U.S. shall not exceed six months unless otherwise approved by the District Engineer.

b. No more than one-half (½) acre of waters of the U.S. may be temporarily filled or impacted unless otherwise approved by the District Engineer (temporary fills and impacts do not affect specified limits for loss of waters associated with specific nationwide permits).

c. Native soils and/or sediments removed from waters of the U.S. for project construction shall be stockpiled and used for site restoration to the maximum extent practicable.

d. Site restoration of temporarily filled or impacted areas shall include returning the area to pre-project ground surface contours. The permittee shall appropriately revegetate temporarily filled or impacted areas with native, noninvasive herbs, shrubs, and/or tree species sufficient in number, spacing, and diversity to replace affected aquatic functions.

Note: The Corps will determine compensatory mitigation requirements for temporary fills and impacts on a case-by-case basis depending on the duration and nature of the temporary fill or impact and the type of aquatic resource affected.

14. *Contractor Notification of Permit Requirements*: The permittee must provide a copy of the nationwide permit verification letter, conditions, and permit drawings to all contractors and any other parties performing the authorized work, prior to the commencement of any work in waters of the U.S.

15. *Inspection of the Project Site:* The permittee shall allow representatives of the District Engineer to inspect the authorized activity to confirm compliance with nationwide permit terms and conditions. A request for access to the site will normally be made sufficiently in advance to allow a property owner or representative the option to be on site during the inspection.



Oregon

Kate Brown, Governor

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Northwest Region Portland Office/Water Quality
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September 11, 2020

Theresa Cook
Coos County Airport District
1100 Airport Lane
North Bend, OR 97459

RE: Nationwide 401 Water Quality Certification Approval for 2017-337, Southern Oregon Regional Airport Runway Safety Area Bulkhead

The US Army Corps of Engineers (USACE) has determined that your project will be authorized under Nationwide Permit (NWP) categories #3, 14, and 27. As described in the application package received and reviewed by the Oregon Department of Environmental Quality (DEQ), the project qualifies for the Nationwide Section 401 Water Quality Certification (WQC), subject to the conditions outlined below. If you cannot meet all conditions of this 401 WQC, you may apply for a standard individual certification. A standard individual certification will require additional information and higher fees will apply.

Certification Decision: Based on information provided by USACE and the Applicant, DEQ is reasonably assured that implementation-eligible activities under the proposed NWP will be consistent with applicable provisions of Sections 301, 302, 303, 306, and 307 of the federal Clean Water Act, state water-quality standards set forth in Oregon Administrative Rules Chapter 340 Division 41, and other appropriate requirements of state law, provided the following conditions are incorporated into the federal permit and strictly adhered to by the Applicant.

In addition to all USACE national and regional permit conditions, the following 401 WQC conditions apply to all NWP categories that qualify for the Nationwide 401 WQC.

401 GENERAL CERTIFICATION CONDITIONS

- 1) **Responsible parties:** This 401 WQC applies to the Applicant. The Applicant is responsible for the work of its contractors and sub-contractors, as well as any other entity that performs work related to this WQC.
- 2) **Work Authorized:** Work authorized by this 401 WQC is limited to the work described in the Application or Pre-Construction Notification submitted to the USACE and additional application materials (hereafter "the permit application materials"), unless otherwise authorized by DEQ. If the project is operated in a manner not consistent with the project description contained in the permit application materials, the Applicant is not in compliance with this 401 WQC and may be subject to enforcement.
- 3) A copy of this 401 WQC must be kept on the job site and readily available for reference by Applicant and its contractors, as well as by DEQ, USACE, National Marine Fisheries Service

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- (NMFS), Oregon Department of Fish and Wildlife (ODFW), and other appropriate state and local government officials.
- 4) In accordance with OAR 340-048-0050, DEQ may modify or revoke this 401 WQC if project activities are having an adverse impact on state water quality or beneficial uses, or if the Applicant is otherwise in violation of the conditions of this certification.
 - 5) The Applicant and its contractors must allow DEQ access to the project site, staging areas, and mitigation sites to monitor compliance with these 401 WQC conditions, including:
 - a. Access to any records, logs, and reports that must be kept under the conditions of this 401 WQC;
 - b. To inspect best management practices (BMPs), monitoring or operational equipment or methods; and
 - c. To collect samples or monitor any discharge of pollutants.
 - 6) Failure of any person or entity to comply with this Order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce its terms.
 - 7) **Land Use Compatibility Statement:** In accordance with OAR 340-048-0020(2) (i), each Applicant must submit findings prepared by the local land use jurisdiction that demonstrates the activity's compliance with the local comprehensive plan. Such findings can be submitted using the appropriate section of the USACE & DSL Joint Permit Application, signed by the appropriate local official and indicating:
 - a. "This project is consistent with the comprehensive plan and land use regulations;" or,
 - b. "This project will be consistent with the comprehensive plan and land use regulations when the following local approvals are obtained," accompanied by the obtained local approvals.
 - c. Rarely, such as for federal projects on federal land, "this project is not regulated by the comprehensive plan" will be acceptable.

In lieu of submitting the appropriate section of the USACE & DSL Joint Permit Application, the Applicant may use DEQ's Land Use Compatibility Statement form found at:
<http://www.oregon.gov/deq/FilterDocs/lucs.pdf>

**FOR PROJECTS THAT PROPOSE CONSTRUCTION, THE FOLLOWING GENERAL
 CONDITIONS APPLY**

- 8) **Erosion and Sediment Control:** During construction, erosion and sediment control measures must be implemented to prevent or control movement of sediment, soil or pollutants into waters of the state. The Applicant is required to develop and implement an effective erosion and sediment control plan. **Any project that disturbs more than one acre is required to obtain an NPDES 1200-C construction stormwater permit from DEQ.** In addition, the Applicant (or responsible party) must:
 - a. Where practicable, use removable pads or mats to prevent soil compaction at all construction access points through, and staging areas in, riparian or wetland areas to prevent soil compaction.

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- b. Demarcate wetlands not specifically authorized to be impacted to protect from disturbance and/or erosion.
 - c. Place dredged or other excavated material on upland areas with stable slopes to prevent materials from eroding back into waterways or wetlands. Place BMPs as necessary to stabilize and prevent erosion.
- 9) **Spill Prevention:** The Applicant must fuel, operate, maintain and store vehicles, and must store construction materials, in areas that will not impact water quality either directly or due to potential discharges.
- 10) **Spill & Incident Reporting:**
- a. In the event that petroleum products, chemicals, or any other deleterious materials are discharged into state waters, the discharge must be promptly reported to the Oregon Emergency Response Service (OERS, 1-800-452-0311). Containment and cleanup must begin immediately and be completed as soon as practicable.
 - b. If the project operations result in distressed or dying fish, the operator must immediately: cease operations; take appropriate corrective measures to prevent further environmental damage; and immediately notify DEQ and ODFW.
- 11) **Vegetation Protection and Site Restoration:**
- a. The Applicant must protect riparian, wetland, and shoreline vegetation in the authorized project area from disturbance through one or more of the following:
 - i. Minimization of project and impact footprint;
 - ii. Designation of staging areas and access points in open, upland areas;
 - iii. Fencing and other barriers demarking construction areas; and
 - iv. Use of alternative equipment (e.g., spider hoe or crane).
 - b. If authorized work results in any vegetative disturbance and the disturbance has not been accounted for in planned mitigation actions, the Applicant must successfully reestablish vegetation to a degree of function equivalent or better than before the disturbance.
- 12) The Applicant shall avoid and protect from harm, **all wetlands and riparian areas located within 50 feet of USACE jurisdictional waters**, unless proposed, necessary, and approved as part of the project. If a local jurisdiction has a more stringent buffer requirement, that requirement will override this certification requirement.

FOR PROJECTS THAT PROPOSE IN-STREAM WORK IN JURISDICTIONAL WATERS

- 13) **Fish protection/Oregon Department of Fish and Wildlife timing:** The Applicant must perform in-water work only within the Oregon Department of Fish and Wildlife preferred time window as specified in the *Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, or as authorized otherwise under a USACE permit and/or Department of State Lands removal/fill permit. Exceptions to the timing window must be recommended by Oregon Department of Fish and Wildlife, the National Marine Fisheries Services and/or the US Fish and Wildlife as appropriate.
- 14) **Aquatic life movements:** Any activity that may disrupt the movement of aquatic life living in the water body, including those species that normally migrate through the area, is prohibited.

Project Name: Southern Oregon Regional Airport Runway Safety Area Bulkhead
 Project Number: 2017-337

The Applicant must provide unobstructed fish passage at all times during any authorized activity, unless otherwise approved in the approved application.

- 15) **Turbidity:** The Applicant must implement appropriate Best Management Practices (BMPs) to minimize turbidity during in-water work. Any activity that causes turbidity to exceed 10% above natural stream turbidity is prohibited except as specifically provided below:
- a. **Monitoring:** Turbidity monitoring must be conducted and recorded as described below. Monitoring must occur at two hour intervals each day during daylight hours when in-water work is being conducted. A properly calibrated turbidimeter is required **unless another monitoring method is proposed and authorized by DEQ.**
 - i. **Representative Background Point:** The Applicant must take and record a turbidity measurement every two hours during in-water work at an undisturbed area. A background location shall be established at a representative location approximately 100 feet upcurrent of the in water activity unless otherwise authorized by DEQ. The background turbidity, location, date, tidal stage (if applicable) and time must be recorded immediately prior to monitoring downcurrent at the compliance point described below.
 - ii. **Compliance Point:** The Applicant must monitor every two hours. A compliance location shall be established at a representative location approximately 100 feet downcurrent from the disturbance at approximately mid-depth of the waterbody and within any visible plume. The turbidity, location, date, tidal stage (if applicable) and time must be recorded for each measurement.
 - b. **Compliance:** The Applicant must compare turbidity monitoring results from the compliance points to the representative background levels taken during each two – hour monitoring interval. Pursuant to OAR 340-041-0036, short term exceedances of the turbidity water quality standard are allowed as follows:

| MONITORING WITH A TURBIDIMETER EVERY 2 HOURS | |
|---|---|
| TURBIDITY LEVEL | Restrictions to Duration of Activity |
| 0 to 4 NTU above background | No Restrictions |
| 5 to 29 NTU above background | Work may continue maximum of 4 hours. If turbidity remains 5-29 NTU above background, stop work and modify BMPs. Work may resume when NTU is 0-4 above background. |
| 30 to 49 NTU above background | Work may continue maximum of 2 hours. If turbidity remains 30-49 NTU above background, stop work and modify BMPs. Work may resume when NTU is 0-4 above background. |
| 50 NTU or more above background | Stop work immediately and inform DEQ |

Project Name: *Southern Oregon Regional Airport Runway Safety Area Bulkhead*
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- c. **Reporting:** The Applicant must record all turbidity monitoring required by subsections (a) and (b) above in daily logs. The daily logs must include calibration documentation; background NTUs; compliance point NTUs; comparison of the points in NTUs; location; date; time; and tidal stage (if applicable) for each reading. Additionally, a narrative must be prepared discussing all exceedances with subsequent monitoring, actions taken, and the effectiveness of the actions. Applicant must make available copies of daily logs for turbidity monitoring to DEQ, USACE, NMFS, USFWS, and ODFW upon request.
- d. **BMPs to Minimize In-stream Turbidity:** The Applicant must implement the following BMPs, unless otherwise accepted by DEQ:
 - i. Sequence/Phasing of Work – The Applicant must schedule work activities so as to minimize in-water disturbance and duration of in-water disturbances;
 - ii. Bucket control - All in-stream digging passes by excavation machinery and placement of fill in-stream using a bucket must be completed so as to minimize turbidity. All practicable techniques such as employing an experienced equipment operator, not dumping partial or full buckets of material back into the wetted stream, adjusting the volume, speed, or both of the load, or using a closed-lipped environmental bucket must be implemented;
 - iii. The Applicant must limit the number and location of stream-crossing events. Establish temporary crossing sites as necessary in the least sensitive areas and amend these crossing sites with clean gravel or other temporary methods as appropriate;
 - iv. Machinery may not be driven into the flowing channel, unless authorized by DEQ; and
 - v. Excavated material must be placed so that it is isolated from the water edge or wetlands, and not placed where it could re-enter waters of the state uncontrolled.

FOR PROJECTS THAT INCLUDE NEW IMPERVIOUS SURFACES OR REDEVELOPMENT OF EXISTING SURFACES, THE FOLLOWING CONDITIONS APPLY

- 16) **Post-Construction Stormwater Management:** For projects which propose new impervious surfaces or the redevelopment of existing surfaces, the Applicant must submit a post-construction stormwater management plan to DEQ for review and approval prior to construction, in order to ensure compliance with water quality standards. The Applicant must implement BMPs as proposed in the stormwater management plan, including operation and maintenance. If proposed stormwater facilities change due to site conditions, the Applicant must notify DEQ.

In lieu of a complete stormwater management plan, the Applicant may submit documentation of acceptance of the stormwater into a DEQ permitted National Pollutant Discharge Elimination System (NPDES) Phase I Municipal Separate Storm Sewer System (MS4).

- 17) **Stormwater Management & System Maintenance:** The Applicant is required to implement effective operation and maintenance practices for the lifetime of the proposed facility.

Project Name: Southern Oregon Regional Airport Runway Safety Area Bulkhead
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CATEGORY-SPECIFIC CONDITIONS

In addition to all national and regional conditions of the USACE permit and the 401 Water Quality Certification general conditions above, the following conditions apply to the noted specific categories of authorized activities.

NWP 7 – Outfall Structures and Associated Intake Structures:

- 7.1) The following actions are denied certification:
- a. Discharge outfalls that are not subject to an NPDES permit; and
 - b. Outfalls that discharge stormwater without pollutant removal demonstrated to meet water-quality standards prior to discharge to waters of the state.
- 7.2) If an Applicant cannot obtain an NPDES permit or submit an approvable stormwater management plan per DEQ's Guidelines found at: <http://www.oregon.gov/deq/FilterDocs/401wqcertPostCon.pdf> the Applicant must submit complete project information and water quality impacts analysis directly to DEQ in order to undergo individual 401 WQC evaluation and fulfill public participation requirements.

NWP 12 – Utility Lines:

- 12.1) For proposals that include directionally-bored stream or wetland crossings:
- a. All drilling equipment, drill recovery and recycling pits, and any waste or spoil produced, must be completely isolated, recovered, then recycled or disposed of to prevent entry into waters of the state.
 - b. In the event that drilling fluids enter a water of the state, the equipment operator must stop work, immediately initiate containment measures and report the spill to the Oregon Emergency Response System (OERS) at 800-452-0311.
 - c. An adequate supply of materials needed to control erosion and to contain drilling fluids must be maintained at the project construction site and deployed as necessary.
 - d. The Applicant must have a contingency plan in place prior to construction for the inadvertent return of drilling lubricant.
- 12.2) For proposals that include utility lines through wetlands, include anti-seep collars or equivalent technology to prevent draining the wetlands.

NWP 13 – Bank Stabilization:

- 13.1) Projects that do not include bioengineering are denied certification, unless a registered professional engineer provides a written statement that non-bioengineered solutions are the only means of protection.

Project Name: *Southern Oregon Regional Airport Runway Safety Area Bulkhead*
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- 13.2) To apply for certification for a project without bioengineering, the Applicant must submit complete project information and water quality impacts analysis directly to DEQ in order to undergo individual 401 WQC evaluation and fulfill public participation requirements.

NWP 14 – Linear Transportation:

- 14.1) For projects that include bank stabilization, bioengineering must be a component of the project, unless a registered professional engineer provides a written statement that non-bioengineered solutions are the only means to protect an existing structure.
- 14.2) To apply for certification for a project without bioengineering, the Applicant must submit complete project information and water quality impacts analysis directly to DEQ in order to undergo individual 401 WQC evaluation and fulfill public participation requirements.

NWP 16 - Return Water from Contained Upland Disposal Areas: Water-quality criteria and guidance values for toxics, per OAR 340-041-0033, are available in Tables 30, 31, and 40 at: <http://www.oregon.gov/deq/Rulemaking%20Docs/tables303140.pdf>.

- 16.1) Discharge of return water from contaminated dredged material that exceeds a chronic or acute toxicity water quality standard is prohibited.
- 16.2) Water removed with contaminated dredged material that could or does exceed chronic water-quality criteria must be contained and disposed of at an appropriately sized and sealed upland facility by evaporation or infiltration.
- 16.3) If a Modified Elutriate Test (MET) is performed for the known contaminants of concern (CoCs) and CoC concentrations are below DEQ chronic water-quality criteria, return water discharge is not limited.
- a. The MET must be performed before dredging.
 - b. DEQ must approve the list of CoCs and analytical method prior to the Applicant performing the MET.
 - c. DEQ must review the results and provide approval of discharge from return water, in writing, prior to dredging.

NWP 20 – Response Operations for Oil and Hazardous Waste:

- 20.1) Coordination with DEQ's Emergency Response program is required. See: <http://www.oregon.gov/deq/Hazards-and-Cleanup/env-cleanup/Pages/Emergency-Response.aspx>.

NWP 22 – Removal of Vessels:

- 22.1) Coordination with DEQ's Emergency Response program is required. See: <http://www.oregon.gov/deq/Hazards-and-Cleanup/env-cleanup/Pages/Emergency-Response.aspx>.

NWP 31 – Maintenance of Existing Flood Control Facilities:

Project Name: Southern Oregon Regional Airport Runway Safety Area Bulkhead
 Project Number: 2017-337

- 31.1) Projects in streams with temperature TMDLs which result in a net reduction of riparian shade are prohibited.

NWP 38 – Cleanup of Hazardous and Toxic Waste:

- 38.1) For removal of contaminated material from waters, dredging method is limited to diver assisted hydraulic suction, hydraulic suction, closed-lipped environmental bucket, or excavation in the dry, unless otherwise authorized by DEQ.
- a. For in-water isolation measures, the Applicant is referred to Appendix D of DEQ's Oregon Erosion and Sediment Control Manual, April 2005 (or most current version), at: <https://www.oregon.gov/deg/FilterPermitsDocs/ErosionSedimentControl.pdf>.
- 38.2) Discharge to waters of the state resulting from dewatering during dredging or release of return water from an upland facility is prohibited except as provided below.
- a. All water removed with sediment must be contained and disposed of at an appropriately sized and sealed upland facility by evaporation or infiltration; or,
 - b. A Modified Elutriate Test (MET) may be performed for the known Contaminants of Concern (CoCs) and if CoC concentrations are below DEQ chronic water-quality criteria; return water discharge is not limited.
 - i. The MET must be performed before dredging.
 - ii. DEQ must approve the list of CoCs and analytical method prior to the Applicant performing the MET.
 - iii. DEQ must review the results and provide approval of discharge from dewatering and return water in writing prior to dredging.
- 38.3) Dredged material must be disposed of in compliance with DEQ Rules governing Hazardous Waste (see: <http://www.oregon.gov/deg/Hazards-and-Cleanup/hw/Pages/default.aspx>) or Solid Waste (see: <http://www.oregon.gov/deg/mm/swpermits/Pages/Solid-Waste-Disposal-Sites-and-Landfill.aspx>).
- 38.4) The new in-water surface must be managed to prevent exposure or mobilization of contaminants.

NWP 41 - Reshaping Existing Drainage Ditches:

- 41.1) To the extent practicable, the Applicant must work from only one bank in order to minimize disturbance to existing vegetation, preferably the bank with the least existing vegetation;
- 41.2) Following authorized work, the Applicant must establish in-stream and riparian vegetation on reshaped channels and side-channels using native plant species wherever practicable. Plantings must be targeted to address water-quality improvement (e.g., provide shade to water to reduce temperature or provide bank stability through root systems to limit sediment inputs). Planting options may include clustering or vegetating only one side of a channel, preferably the side which provides maximum shade.

Project Name: Southern Oregon Regional Airport Runway Safety Area Bulkhead
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NWP 42 – Recreational Facilities:

- 42.1) For facilities that include turf maintenance actions, the Applicant must develop and implement an Integrated Pest Management Plan (IPM) that describes pest prevention, monitoring and control techniques with a focus on prevention of chemical and nutrient inputs to waters of the state, including maintenance of adequate buffers for pesticide application near salmonid streams, or coverage under an NPDES permit, if required (information is available at: <http://www.oregon.gov/deq/wq/wqpermits/Pages/Pesticide.aspx>).

NWP 43 – Stormwater Management Facilities:

- 43.1) Projects that propose the following elements are denied certification:
- In-stream or wetland stormwater facilities;
 - Discharge outfalls not subject to an NPDES permit; and,
 - Proposals that do not demonstrate pollutant removal to meet water-quality standards prior to discharge to waters of the state.
- 43.2) To apply for certification for a project with in-stream stormwater facilities, without an NPDES permit, or without submittal of an approvable stormwater management plan per DEQ's Guidelines (at: <http://www.oregon.gov/deq/FilterDocs/401wqcertPostCon.pdf>), the Applicant must submit complete project information and water quality impacts analysis directly to DEQ in order to undergo individual 401 WQC evaluation and fulfill public participation requirements.

NWP 44 – Mining Activities:

- 44.1) Projects that do not obtain an NPDES 700-PM or Individual permit are denied certification.
- 44.2) To apply for certification for a project without an NPDES permit, the Applicant must submit complete project information and water quality impacts analysis directly to DEQ in order to undergo individual 401 WQC evaluation and fulfill public participation requirements.

NWP 51 – Land-Based Renewable Energy Generation Facilities:

- 51.1) For associated utility lines with directionally-bored stream or wetland crossings proposed, condition 12.1 must be applied.

NWP 54 – Living Shorelines

- 54.1) Projects that do not include bioengineering are denied certification, unless a registered professional engineer provides a written statement that non-bioengineered solutions are the only means of protection.

If the Applicant is dissatisfied with the conditions contained in this certification, a hearing may be requested. Such request must be made in writing to DEQ's Office of Compliance and Enforcement at 700 NE Multnomah St, Suite 600, Portland Oregon 97232, within 20 days of the mailing of this certification.

The DEQ hereby certifies that this project complies with the Clean Water Act and state rules, with the above conditions. If you have any questions, please contact Anne Kim at 503-229-5623, by email at Kim.Anne@deq.state.or.us, or at the address on this letterhead.

Project Name: *Southern Oregon Regional Airport Runway Safety Area Bulkhead*
Project Number: 2017-337

Sincerely,



Steve Mrazik,
Water Quality Manager
Northwest Region

ec: Tyler Krug, USACE
Bob Lobdell, DSL
Deanna Caracciolo, DLCD
Aaron Killgore, Mead & Hunt, Inc.
Sean Callahan, FAA

Oregon Department of Land Conservation And Development Standard Oregon Coastal Management Program Coastal Zone Conditions

The federal Coastal Zone Management Act provides that federal actions affecting any use or resource of the coastal zone,* including projects permitted by the U.S. Army Corps of Engineers (USACE), must be consistent with the enforceable policies of a State's federally approved coastal management program. Oregon's approved program, the Oregon Coastal Management Program (OCMP), is a "networked" program that integrates authorities of local governments and other state agencies. The coastal zone conditions contained in this document reflect the networked nature of the OCMP, and reference the specific applicable enforceable policies.

In addition to all USACE national and regional permit conditions, permitted projects in Oregon's coastal zone must comply with the following coastal zone conditions.

If an applicant chooses not to follow one or more of the coastal zone conditions, the Department of Land Conservation and Development (DLCD) will object to the permit issuance pursuant to 15 CFR § 930.63(e). In that instance, the permittee may appeal the state's objection by requesting that the Secretary of Commerce override the objection pursuant to 15 CFR 930, subpart H, within 30 days of receipt of the letter informing the applicant of the OCMP's objection. In order to grant an override request, the Secretary must find that the activity is consistent with the objectives or purposes of the Coastal Zone Management Act, or is necessary in the interest of national security. A copy of the request and supporting information must be sent to the OCMP and the USACE. The Secretary may collect fees from the permittee for administering and processing the override request.

*Oregon's coastal zone generally includes the area lying between the Oregon/Washington border on the north, to the Oregon/California border on the south, seaward to the extent of the state's jurisdiction as recognized by federal law, and inland to the crest of the Coast Range Mountains, excepting:

- (a) The Umpqua River basin, where the coastal zone extends to Scottsburg;
- (b) The Rogue River basin, where the coastal zone extends to Agness; and
- (c) The Columbia River basin, where the coastal zone extends to the downstream end of Puget Island.

CZ Condition 1. Consistency with Local Comprehensive Plans

(1) Permitted projects must be consistent with or not subject to the applicable local comprehensive plan and implementing land use regulations, including the applicable estuary management plan, or the statewide land use planning goals where applicable. Permittee must obtain required permits or other authorizations from the applicable local government before initiating work under any USACE permit. Permittee are encouraged to provide USACE and the OCMP with verification of the local jurisdiction's approval in the form of a completed block ten (10) of the Joint Permit Application. All appeals of the local jurisdiction's decision(s) must be resolved before any regulated work may begin.

(2) All conditions placed on an authorization or permit by the local government are incorporated by reference into the OCMP coastal zone conditions.

[Enforceable Policy: ORS chapter 197, Comprehensive Land Use Planning Coordination]

CZ Condition 2. Consistency with Removal-Fill Law

- (1) Permitted projects must be consistent with or not subject to the state requirements governing removal-fill in waters of the state. Permittee must obtain required permits or other authorizations from the Oregon Department of State Lands (DSL) before any regulated work may begin.
- (2) Projects requiring a DSL Removal-Fill permit must compensate for reasonably expected adverse impacts by complying to the full extent with DSL's compensatory mitigation requirements.
- (3) Where DSL finds a project not subject to the Removal/Fill Law, permittee must submit to DSL any changes in project design or implementation that may reasonably be expected to require application of the Removal/Fill Law.
- (4) All conditions placed on a Removal-Fill permit by DSL are incorporated by reference into the OCMP coastal zone conditions.

[Enforceable Policy: ORS chapter 196, Removal of Material; Filling]

CZ Condition 3. Leases of State Lands

- (1) Permitted projects must be consistent with or not subject to state requirements governing use of state lands. Permittee must obtain any required lease, license, or other authorization for the use of state lands or waters from the Oregon Department of State Lands (DSL) before any regulated work may begin.
- (2) All conditions placed on a lease, license, or authorization by DSL are incorporated by reference into the OCMP coastal zone conditions.

[Enforceable Policy: ORS chapter 274, Submersible and Submerged Lands]

CZ Condition 4. Department of Environmental Quality

- (1) Permitted projects must be consistent with or not subject to the state requirements governing water quality. Permittee must obtain certification, if required, from the Oregon Department of Environmental Quality (DEQ) through its 401 Water Quality Certification process before any regulated work may begin.
- (2) All conditions placed on a license, permit, or authorization by DEQ are incorporated by reference into the OCMP coastal zone conditions.

[Enforceable Policy: ORS chapter 468B, Water Quality]

CZ Condition 5. Fish and Aquatic Life Passage

- (1) Where applicable, all authorized projects shall be in conformance with ODFW standards for fish passage (<http://www.dfw.state.or.us/fish/passage/>). Decisions to abrogate ODFW fish passage standards shall be accompanied by written approval from ODFW.
- (2) No work shall be authorized that does not provide for adequate passage of "aquatic life." Aquatic life shall be interpreted to include amphibians, reptiles, and mammals whose natural habitat includes waters of this state and which are generally present in or around, or pass through the project site.

(3) This condition is effective only where ODFW regulations apply.

[Enforceable Policy: ORS chapter 509, Additional Fishery Requirements]

CZ Condition 6. Ocean Shore

(1) Permitted projects must be consistent with or not subject to state requirements governing use of the ocean shore. Permittee must obtain, if required, an ocean shore permit from the Oregon Parks and Recreation Department (OPRD) before any regulated work may begin.

(2) All conditions placed on an Ocean Shore permit by OPRD are incorporated by reference into the OCMP coastal zone conditions.

[Enforceable Policy: ORS chapter 390, Ocean Shores]

CZ Condition 7. Aquaculture

(1) Permitted projects must be consistent with or not subject to state requirements governing commercial aquaculture or mariculture cultivation of oysters, clams, and mussels. Permittee must obtain, if required, authorization from the Oregon Department of Agriculture (ODA) for use of state submerged and submersible lands for aquaculture purposes.

(2) All conditions placed on an aquaculture or mariculture operation by the ODA are incorporated by reference into the OCMP coastal zone conditions.

[Enforceable Policy: ORS chapter 622, Shellfish]



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Boulevard, Suite 1100
PORTLAND, OR 97232-1274

Refer to NMFS Consultation No.:
WCRO-2019-03422

July 29, 2020

Sean Callahan
Federal Aviation Administration
2200 S 216th Street
Des Moines, Washington 98198

William D. Abadie
Chief, Regulatory Branch
U.S. Army Corps of Engineers
P.O. Box 2946
Portland, Oregon 97208-2946

Re: Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Southwest Oregon Regional Airport Runway Safety Area Improvements, North Bend, Oregon

Dear Mr. Callahan and Mr. Abadie:

Thank you for your letter of October 15, 2019, requesting initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.) for the Southwest Oregon Regional Airport runway safety area improvements. This consultation was conducted in accordance with the 2019 revised regulations that implement section 7 of the ESA (50 CFR 402, 84 FR 45016). Thank you, also, for your request for consultation pursuant to the essential fish habitat (EFH) provisions in Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA)(16 U.S.C. 1855(b)) for this action.

In this biological opinion (opinion), we conclude that the proposed action is not likely to jeopardize the continued existence of Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*), southern distinct population segment Pacific eulachon (eulachon) (*Thaleichthys pacificus*), or southern distinct population segment North American green sturgeon (green sturgeon) (*Acipenser medirostris*). We also conclude the project will not result in the destruction or adverse modification of designated critical habitat for OC coho salmon or green sturgeon. The effects of this action would occur outside the geographic range of designated critical habitat for eulachon.

As required by section 7 of the ESA, we are providing an incidental take statement (ITS) with the opinion. The ITS describes reasonable and prudent measures we consider necessary or appropriate to minimize the impact of incidental take associated with this action.



The ITS sets forth nondiscretionary terms and conditions, including reporting requirements, and the Federal Aviation Administration (FAA) must comply with them to implement the reasonable and prudent measures. Incidental take from actions that meet these terms and conditions will be exempt from the ESA's prohibition against the take of listed species. Exceeding the specified level of take in the ITS would trigger reinitiation of this consultation.

This document also includes the results of our analysis of the action's likely effects on EFH and includes four conservation recommendations to avoid, minimize, or otherwise offset potential adverse effects on EFH. Three of these conservation recommendations are a subset of the ESA take statement's terms and conditions. Section 305(b) (4) (B) of the MSA requires Federal agencies to provide a detailed written response to us within 30 days after receiving these recommendations.

If the response is inconsistent with the EFH conservation recommendations, the FAA must explain why the recommendations will not be followed, including the scientific justification for any disagreements over the effects of the action and the recommendations. In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, we established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, we request that in your statutory reply to the EFH portion of this consultation, you clearly identify the number of conservation recommendations accepted.

Please contact Chuck Wheeler, fisheries biologist in the Oregon Coast Branch, at 541.957.3379 if you have any questions concerning this section 7 consultation, or if you require additional information.

Sincerely,

A handwritten signature in blue ink, appearing to read "Kim W. Kratz".

Kim W. Kratz, Ph.D
Assistant Regional Administrator
Oregon Washington Coastal Office

cc: Tyler Krug, Corps of Engineers

**Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens
Fishery Conservation and Management Act Essential Fish Habitat Response for the**

Southwest Oregon Regional Airport Runway Safety Area Improvements

NMFS Consultation Number: WCRO-2019-03422

Action Agencies: Federal Aviation Administration
U.S. Army Corps of Engineers

Affected Species and NMFS' Determinations:

| ESA-Listed Species | Status | Is Action Likely to Adversely Affect Species? | Is Action Likely To Jeopardize the Species? | Is Action Likely to Adversely Affect Critical Habitat? | Is Action Likely To Destroy or Adversely Modify Critical Habitat? |
|--|------------|---|---|--|---|
| Oregon Coast coho salmon | Threatened | Yes | No | Yes | No |
| Southern distinct population segment North American green sturgeon | Threatened | Yes | No | Yes | No |
| Southern distinct population segment Pacific eulachon | Threatened | Yes | No | No | No |

| Fishery Management Plan That Identifies EFH in the Project Area | Does Action Have an Adverse Effect on EFH? | Are EFH Conservation Recommendations Provided? |
|---|--|--|
| Pacific Coast Salmon | Yes | Yes |
| Pacific Coast Groundfish | Yes | Yes |
| Coastal Pelagic Species | Yes | Yes |

Consultation Conducted By: National Marine Fisheries Service
West Coast Region

Issued By:



Kim W. Kratz, Ph.D
Assistant Regional Administrator
Oregon Washington Coastal Office

Date: July 29, 2020

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1. INTRODUCTION

This Introduction section provides information relevant to the other sections of this document and is incorporated by reference into Sections 2 and 3, below.

1.1 Background

The National Marine Fisheries Service (NMFS) prepared the biological opinion (opinion) and incidental take statement (ITS) portions of this document in accordance with section 7(b) of the Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.), and implementing regulations at 50 CFR 402, as amended. We also completed an essential fish habitat (EFH) consultation on the proposed action, in accordance with section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1801 et seq.) and implementing regulations at 50 CFR 600.

We completed pre-dissemination review of this document using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (DQA) (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The document will be available within two weeks at the NOAA Library Institutional Repository [<https://repository.library.noaa.gov/welcome>].

1.2 Consultation History

On October 16, 2019, we received a biological assessment (BA) from the Federal Aviation Administration (FAA) along with a letter requesting formal consultation on the potential effects of the runway safety area improvement projects at the Southwest Oregon Regional Airport.

In a December 11, 2019, email from Chuck Wheeler (NMFS) to you, we asked for additional information pertaining to mitigation and stormwater management plans. We received adequate information about mitigation in an email on January 30, 2020. We received adequate information about stormwater management in an email on April 13, 2020, and acknowledged sufficient information to initiate formal consultation on that day. The Corps of Engineers (Corps) will issue a permit (NWP-2017-337) for this work under their authorities and requested to be part of this consultation on April 8, 2020.

The FAA determined the action may affect and is likely to adversely affect Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*), southern distinct population segment (DPS) North American green sturgeon (*Acipenser medirostris*) (hereafter referred to as ‘green sturgeon’), and designated critical habitat for these species. The FAA determined the action may affect, but is not likely to adversely affect southern DPS Pacific eulachon (*Thaleichthys pacificus*) (hereafter referred to as ‘eulachon’).

1.3 Proposed Federal Action

Under the ESA, “action” means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies (50 CFR 402.02). Under the MSA, the

Federal action means any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken by a Federal Agency (50 CFR 600.910). The FAA is proposing to fund the Southwest Oregon Regional Airport (Airport) to complete five improvement projects. The Corps of Engineers will issue a permit (NWP-2017-337) for this work under their authorities. The five projects are:

- Installation of a bulkhead at the northeast end of Runway 4/22 to address runway safety area compliance.
- Reconstruction of the main apron pavement and relocation of the taxiway connectors.
- Relocation and reconstruction of the Aircraft Rescue and Firefighting (ARFF) facility according to FAA standards.
- Improvements to the approach lighting system with runway alignment indicator lights on catwalk.
- Relocation of the glide slope tower to 150 feet south of the Runway 4/22 centerline.

The only in-water construction work is fill for installation of the bulkhead. The Airport will fill 0.07 acres of Coos Bay to construct the bulkhead in compliance with FAA runway safety requirements. All in-water work will occur between October 1 and February 15 in compliance with the Oregon Department of Fish and Wildlife (ODFW) preferred in-water work window for Coos Bay. In-water work will occur on outgoing tides, reducing the potential for sedimentation on eelgrass beds upstream in Pony Slough. Prior to excavation, the Airport will construct a cofferdam to isolate the work area. The Airport will use an excavator and/or hydraulic suction dredge operated from a floating barge to excavate substrate in preparation for bulkhead construction. The Airport will ensure daily testing of all equipment for fluid leaks, and repair of any leaks before operation resumes. The Airport will ensure diapering of all stationary power equipment operated within 150 feet of Coos Bay to prevent leaks.

The Airport will mitigate for filling 0.07 acres of Coos Bay with two actions. The first is removing an abandoned wooden boat ramp (approximately 800 square feet) and approximately 60 creosote-treated piles. These activities will enhance approximately 0.09 acres of bay. The second action will remove approximately 40 creosote-treated piles from an abandoned pier. This activity will enhance approximately 0.08 acres of bay.

The new ARFF site currently has 0.93 acres of impervious surfaces. After construction, the site will have 0.84 acres of impervious surfaces. As part of the construction activity, the Airport will provide stormwater treatment. The stormwater treatment plan consists of treating 50% of the 2-year, 24-hour storm for runoff from 0.69 acres of impervious surfaces. Treatment consists of biofiltration facilities designed in accordance with the Washington State Department of Transportation, Aviation Stormwater Design Manual: Managing Wildlife Hazards Near Airports (WSDOT 2008). Due to site constraints, 0.15 acres of new impervious surfaces are not treatable. As an offset for these untreated areas, the Airport will remove 0.1 acres of impervious surface at the old ARFF site and the 0.09 acres of impervious surface at the new site. This results in a net reduction of 0.19 acres of impervious surfaces. Furthermore, the Airport will treat 0.05 acres of impervious surfaces unrelated to the ARFF site.

We considered whether or not the proposed action would cause any other activities and determined that it will not.

2. ENDANGERED SPECIES ACT: BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT

The ESA establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat upon which they depend. As required by section 7(a)(2) of the ESA, each Federal agency must ensure that its actions are not likely to jeopardize the continued existence of endangered or threatened species, or adversely modify or destroy their designated critical habitat. Per the requirements of the ESA, Federal action agencies consult with NMFS and section 7(b)(3) requires that, at the conclusion of consultation, NMFS provide an opinion stating how the agency's actions would affect listed species and their critical habitats. If incidental take is reasonably certain to occur, section 7(b)(4) requires NMFS to provide an ITS that specifies the impact of any incidental taking and includes non-discretionary reasonable and prudent measures (RPMs) and terms and conditions to minimize such impacts.

The FAA determined the action may affect, but is not likely to adversely affect eulachon. We do not concur with this determination and included them in this biological opinion. The effects of this action would occur outside the geographic range of designated critical habitat for eulachon.

2.1 Analytical Approach

This biological opinion includes both a jeopardy analysis and an adverse modification analysis. The jeopardy analysis relies upon the regulatory definition of "jeopardize the continued existence of" a listed species, which is "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR 402.02). Therefore, the jeopardy analysis considers both survival and recovery of the species.

This biological opinion relies on the definition of "destruction or adverse modification," which "means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species" (50 CFR 402.02).

The designations of critical habitat for OC coho salmon and green sturgeon use the term primary constituent element (PCE) or essential features. The 2016 critical habitat regulations (50 CFR 424.12) replaced this term with physical or biological features (PBFs). The shift in terminology does not change the approach used in conducting a "destruction or adverse modification" analysis, which is the same regardless of whether the original designation identified PCEs, PBFs, or essential features. In this biological opinion, we use the term PBF to mean PCE or essential feature, as appropriate for the specific critical habitat.

The 2019 regulations define effects of the action using the term "consequences" (50 CFR 402.02). As explained in the preamble to the regulations (84 FR 44977), that definition does not

change the scope of our analysis and in this opinion we use the terms “effects” and “consequences” interchangeably.

We use the following approach to determine whether a proposed action is likely to jeopardize listed species or destroy or adversely modify critical habitat:

- Evaluate the rangewide status of the species and critical habitat expected to be adversely affected by the proposed action.
- Evaluate the environmental baseline of the species and critical habitat.
- Evaluate the effects of the proposed action on species and their habitat using an exposure-response approach.
- Evaluate cumulative effects.
- In the integration and synthesis, add the effects of the action and cumulative effects to the environmental baseline, and, in light of the status of the species and critical habitat, analyze whether the proposed action is likely to: 1) directly or indirectly reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species, or 2) directly or indirectly result in an alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.
- If necessary, suggest a reasonable and prudent alternative to the proposed action.

2.2 Rangewide Status of the Species and Critical Habitat

This opinion examines the status of each species that would be adversely affected by the proposed action. The status is determined by the level of extinction risk that the listed species face, based on parameters considered in documents such as recovery plans, status reviews, and listing decisions. This informs the description of the species’ likelihood of both survival and recovery. The species status section also helps to inform the description of the species’ “reproduction, numbers, or distribution” as described in 50 CFR 402.02. The opinion also examines the condition of critical habitat throughout the designated area, evaluates the conservation value of the various watersheds and coastal and marine environments that make up the designated area, and discusses the function of the essential PBFs that help to form that conservation value.

One factor affecting the status of ESA-listed species considered in this opinion, and aquatic habitat at large, is climate change. Climate change is likely to play an increasingly important role in determining the abundance and distribution of ESA-listed species, and the conservation value of designated critical habitats, in the Pacific Northwest. These changes will not be spatially homogeneous across the Pacific Northwest. The largest hydrologic responses are expected to occur in basins with significant snow accumulation, where warming decreases snow pack, increases winter flows, and advances the timing of spring melt (Mote *et al.* 2014, Mote *et al.* 2016). Rain-dominated watersheds and those with significant contributions from groundwater may be less sensitive to predicted changes in climate (Tague *et al.* 2013, Mote *et al.* 2014).

During the last century, average regional air temperatures in the Pacific Northwest increased by 1-1.4°F as an annual average, and up to 2°F in some seasons (based on average linear increase

per decade; Abatzoglou *et al.* 2014, Kunkel *et al.* 2013). Warming is likely to continue during the next century as average temperatures are projected to increase another 3-10°F, with the largest increases predicted to occur in the summer (Mote *et al.* 2014). Decreases in summer precipitation of as much as 30% by the end of the century are consistently predicted across climate models (Mote *et al.* 2014). Precipitation is more likely to occur during October through March, less during summer months, and more winter precipitation will be rain than snow (ISAB 2007, Mote *et al.* 2013, Mote *et al.* 2014). Earlier snowmelt will cause lower stream flows in late spring, summer, and fall, and water temperatures will be warmer (ISAB 2007, Mote *et al.* 2014). Models consistently predict increases in the frequency of severe winter precipitation events (i.e., 20-year and 50-year events), in the western United States (Dominguez *et al.* 2012). The largest increases in winter flood frequency and magnitude are predicted in mixed rain-snow watersheds (Mote *et al.* 2014).

Overall, about one-third of the current cold-water salmonid habitat in the Pacific Northwest is likely to exceed key water temperature thresholds by the end of this century (Mantua *et al.* 2009). Higher temperatures will reduce the quality of available salmonid habitat for most freshwater life stages (ISAB 2007). Reduced flows will make it more difficult for migrating fish to pass physical and thermal obstructions, limiting their access to available habitat (Mantua *et al.* 2010, Isaak *et al.* 2012). Temperature increases shift timing of key life cycle events for salmonids and species forming the base of their aquatic foodwebs (Crozier *et al.* 2011, Tillmann and Siemann 2011, Winder and Schindler 2004). Higher stream temperatures will also cause decreases in dissolved oxygen and may also cause earlier onset of stratification and reduced mixing between layers in lakes and reservoirs, which can also result in reduced oxygen (Meyer *et al.* 1999, Winder and Schindler 2004, Raymondi *et al.* 2013). Higher temperatures are likely to cause several species to become more susceptible to parasites, disease, and higher predation rates (Crozier *et al.* 2008, Wainwright and Weitkamp 2013, Raymondi *et al.* 2013).

As more basins become rain-dominated and prone to more severe winter storms, higher winter stream flows may increase the risk that winter or spring floods in sensitive watersheds will damage spawning redds and wash away incubating eggs (Goode *et al.* 2013). Earlier peak stream flows will also alter migration timing for salmon smolts, and may flush some young salmon and steelhead from rivers to estuaries before they are physically mature, increasing stress and reducing smolt survival (McMahon and Hartman 1989, Lawson *et al.* 2004).

In addition to changes in freshwater conditions, predicted changes for coastal waters in the Pacific Northwest as a result of climate change include increasing surface water temperature, increasing but highly variable acidity, and increasing storm frequency and magnitude (Mote *et al.* 2014). Elevated ocean temperatures already documented for the Pacific Northwest are highly likely to continue during the next century, with sea surface temperature projected to increase by 1.0-3.7°C by the end of the century (IPCC 2014). Habitat loss, shifts in species' ranges and abundances, and altered marine food webs could have substantial consequences to anadromous, coastal, and marine species in the Pacific Northwest (Tillmann and Siemann 2011, Reeder *et al.* 2013).

Moreover, as atmospheric carbon emissions increase, increasing levels of carbon are absorbed by the oceans, changing the pH of the water. Acidification also impacts sensitive estuary habitats,

where organic matter and nutrient inputs further reduce pH and produce conditions more corrosive than those in offshore waters (Feely *et al.* 2012, Sunda and Cai 2012).

Global sea levels are expected to continue rising throughout this century, reaching likely predicted increases of 10-32 inches by 2081-2100 (IPCC 2014). These changes will likely result in increased erosion and more frequent and severe coastal flooding, and shifts in the composition of nearshore habitats (Tillmann and Siemann 2011, Reeder *et al.* 2013). Estuarine-dependent salmonids such as chum and Chinook salmon are predicted to be impacted by significant reductions in rearing habitat in some Pacific Northwest coastal areas (Glick *et al.* 2007).

Historically, warm periods in the coastal Pacific Ocean have coincided with relatively low abundances of salmon and steelhead, while cooler ocean periods have coincided with relatively high abundances, and therefore these species are predicted to fare poorly in warming ocean conditions (Scheuerell and Williams 2005, Zabel *et al.* 2006). This is supported by the recent observation that anomalously warm sea surface temperatures off the coast of Washington from 2013 to 2016 resulted in poor coho and Chinook salmon body condition for juveniles caught in those waters (NWFSC 2015). Changes to estuarine and coastal conditions, as well as the timing of seasonal shifts in these habitats, have the potential to impact a wide range of listed aquatic species (Tillmann and Siemann 2011, Reeder *et al.* 2013).

The adaptive ability of these threatened and endangered species is depressed due to reductions in population size, habitat quantity and diversity, and loss of behavioral and genetic variation. Without these natural sources of resilience, systematic changes in local and regional climatic conditions due to anthropogenic global climate change will likely reduce long-term viability and sustainability of populations in many of these salmon evolutionarily significant units (ESUs) and steelhead DPSs (NWFSC 2015). New stressors generated by climate change, or existing stressors with effects that have been amplified by climate change, may also have synergistic impacts on species and ecosystems (Doney *et al.* 2012). These conditions will possibly intensify the climate change stressors inhibiting recovery of ESA-listed species in the future.

2.2.1 Status of the Species

Table 1 provides a summary of listing and recovery plan information, status, and limiting factors for the species addressed in this opinion. More information can be found in recovery plans and status reviews for these species. These documents are available on the NMFS West Coast Region website (<http://www.westcoast.fisheries.noaa.gov/>) and cited in the References Section of this opinion.

Table 1. Listing classification and date, recovery plan reference, most recent status review, status summary, and limiting factors for each species considered in this opinion.

| Species | Listing Classification and Date | Recovery Plan Reference | Most Recent Status Review | Status Summary | Limiting Factors |
|---|---|-------------------------|---------------------------|---|--|
| Oregon Coast (OC) coho salmon | Threatened 6/20/11; reaffirmed 4/14/14 | NMFS 2016 | NWFSC 2015 | This ESU comprises 56 populations including 21 independent and 35 dependent populations. The last status review indicated a moderate risk of extinction. Significant improvements in hatchery and harvest practices have been made for this ESU. Most recently, spatial structure conditions have improved in terms of spawner and juvenile distribution in watersheds; none of the geographic area or strata within the ESU appear to have considerably lower abundance or productivity. The ability of the ESU to survive another prolonged period of poor marine survival remains in question. | <ul style="list-style-type: none"> • Reduced amount and complexity of habitat including connected floodplain habitat • Degraded water quality • Blocked/impaired fish passage • Inadequate long-term habitat protection • Changes in ocean conditions |
| Southern DPS green sturgeon (green sturgeon) | Threatened 4/7/06 | NMFS 2018 | NMFS 2015 | The Sacramento River contains the only known green sturgeon spawning population in this DPS. The current estimate of spawning adult abundance is between 824-1,872 individuals. Telemetry data and genetic analyses suggest green sturgeon generally occur from Graves Harbor, Alaska to Monterey Bay, California and, within this range, most frequently occur in coastal waters of Washington, Oregon, and Vancouver Island and near San Francisco and Monterey bays. Within the nearshore marine environment, tagging and fisheries data indicate that green sturgeon prefer marine waters of less than a depth of 110 meters. | <ul style="list-style-type: none"> • Reduction of its spawning area to a single known population • Lack of water quantity • Poor water quality • Poaching |

| Species | Listing Classification and Date | Recovery Plan Reference | Most Recent Status Review | Status Summary | Limiting Factors |
|--|---------------------------------|-------------------------|------------------------------|---|---|
| Southern DPS Pacific eulachon (eulachon) | Threatened 3/18/10 | NMFS 2017 | Gustafson <i>et al.</i> 2016 | The Southern DPS of eulachon includes all naturally-spawned populations that occur in rivers south of the Nass River in British Columbia to the Mad River in California. Sub populations for this species include the Fraser River, Columbia River, British Columbia and the Klamath River. In the early 1990s, there was an abrupt decline in the abundance of eulachon returning to the Columbia River. Despite a brief period of improved returns in 2001-2003, the returns and associated commercial landings eventually declined to the low levels observed in the mid-1990s. Although eulachon abundance in monitored rivers has generally improved, especially in the 2013-2015 return years, recent poor ocean conditions and the likelihood that these conditions will persist into the near future suggest that population declines may be widespread in the upcoming return years. | <ul style="list-style-type: none"> • Changes in ocean conditions due to climate change, particularly in the southern portion of the species' range where ocean warming trends may be the most pronounced and may alter prey, spawning, and rearing success. • Climate-induced change to freshwater habitats • Bycatch of eulachon in commercial fisheries • Adverse effects related to dams and water diversions • Water quality, • Shoreline construction • Over harvest • Predation |

2.2.2 Status of the Critical Habitat

This section describes the status of designated critical habitats affected by the proposed action by examining the condition and trends of the essential PBFs of that habitat throughout the designated areas. These features are essential to the conservation of the ESA-listed species because they support one or more of the species' life stages (e.g., sites with conditions that support spawning, rearing, migration and foraging). For several of the species covered in this opinion, we have not designated critical habitat or it is designated, but outside of the action area. The BA included detailed analysis of the status of critical habitat. We incorporate that discussion by reference here, also.

A summary of the status of critical habitats considered in this opinion is provided in Table 2, below.

Table 2. Critical habitat, designation date, federal register citation, and status summary for critical habitat considered in this opinion.

| Species | Designation Date and Federal Register Citation | Critical Habitat Status Summary |
|---|--|---|
| Oregon Coast (OC) coho salmon | 2/11/08 73 FR 7816 | Critical habitat encompasses 13 subbasins in Oregon. The long-term decline in OC coho salmon productivity reflects deteriorating conditions in freshwater habitat as well as extensive loss of access to habitats in estuaries and tidal freshwater. Many of the habitat changes resulting from land use practices over the last 150 years that contributed to the ESA-listing of OC coho salmon continue to hinder recovery of the populations; changes in the watersheds due to land use practices have weakened natural watershed processes and functions, including loss of connectivity to historical floodplains, wetlands and side channels; reduced riparian area functions (stream temperature regulation, wood recruitment, sediment and nutrient retention); and altered flow and sediment regimes (NMFS 2016). Several historical and ongoing land uses have reduced stream capacity and complexity in Oregon coastal streams and lakes through disturbance, road building, splash damming, stream cleaning, and other activities. Beaver removal, combined with loss of large wood in streams, has also led to degraded stream habitat conditions for coho salmon (Stout et al. 2012). |
| Southern DPS of green sturgeon (hereafter green sturgeon) | 10/09/09 74 FR 52300 | Critical habitat has been designated in coastal U.S. marine waters within 60 fathoms depth from Monterey Bay, California (including Monterey Bay), north to Cape Flattery, Washington, including the Strait of Juan de Fuca, Washington, to its United States boundary; the Sacramento River, lower Feather River, and lower Yuba River in California; the Sacramento-San Joaquin Delta and Suisun, San Pablo, and San Francisco bays in California; tidally influenced areas of the Columbia River estuary from the mouth upstream to river mile 46; and certain coastal bays and estuaries in California (Humboldt Bay), Oregon (Coos Bay, Winchester Bay, Yaquina Bay, and Nehalem Bay), and Washington (Willapa Bay and Grays Harbor), including, but not limited to, areas upstream to the head of tide in various streams that drain into the bays, as listed in Table 1 in USDC (2009). The CHRT identified several activities that threaten the PBFs in coastal bays and estuaries and necessitate the need for special management considerations or protection. The application of pesticides is likely to adversely affect prey resources and water quality within the bays and estuaries, as well as the growth and reproductive health of green sturgeon through bioaccumulation. Other activities of concern include those that disturb bottom substrates, adversely affect prey resources, or degrade water quality through re-suspension of contaminated sediments. Of particular concern are activities that affect prey resources. Prey resources are affected by: commercial shipping and activities generating point source pollution and non-point source pollution that discharge contaminants and result in bioaccumulation of contaminants in green sturgeon; disposal of dredged materials that bury prey resources; and bottom trawl fisheries that disturb the bottom (but result in beneficial or adverse effects on prey resources for green sturgeon). |

2.3 Action Area

“Action area” means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). For this action, the action area is defined as the footprints of all areas involved in constructing the improvements. The action area also includes Coos Bay beginning at the confluence with the Pacific Ocean upstream to river mile 9. Because of tidal ebb and flow, this 9-mile reach of Coos Bay may be affected by some level of contaminants from project-related stormwater. River mile 9 is the transition point between the lower bay subsystem and upper bay subsystem (ODFW 1979). The lower bay subsystem is a confined channel with high velocities likely to carry contaminants far distances. The upper bay subsystem is an unconfined channel approximately 3 times wider than the lower. Velocities during flood tides within the upper bay subsystem are significantly lower and less likely to transport contaminants than those in the lower subsystem. Because of the lower flood velocities in the upper bay subsystem and distance from the outfall, contaminants from project-related stormwater are not reasonably certain to distribute above river mile 9. The action area occurs in sixth-field hydrologic unit code (HUC) watershed #171003040306.

2.4 Environmental Baseline

The “environmental baseline” refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultations, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency’s discretion to modify are part of the environmental baseline (50 CFR 402.02).

The Coos Bay estuary, contains habitats for the Coos population of OC coho salmon, eulachon, and green sturgeon. Over the last 10 years (2009-2018), the average annual adult return of OC coho salmon is 13,845 to the Coos population (Sounhein *et al.* 2019). Eulachon returning to Coos Bay tributaries are likely part of the Columbia River subpopulation, which has a 10-year (2009-2018) average annual adult return of approximately 57 million (Langness *et al.* 2018). The total population of green sturgeon is estimated at 17,548 individuals (Mora *et al.* 2017).

The estuary is classified as a drowned river mouth type estuary, where winter flows discharge high volumes of sediment through the estuary. In summer, when discharge is lower, seawater inflow dominates the estuary. ODFW researchers have divided the estuary into subsystems: marine (mouth to river mile 2.5), lower bay (river mile 2.5 to river mile 9), upper bay (river mile 9 to river mile 17), riverine and slough. These categories were based on sediments, habitat types and geographic locations.

The airport is within the lower bay subsystem. Berg *et al.* (2013) described the lower bay subsystem as:

“The lower bay subsystem experiences substantial oceanic influence, but is not strongly affected by wave action. Habitat has considerable bearing on the type of fish present, and generally this area is relatively protected from turbulence. Marsh and eelgrass habitat are more common in this subsystem and these vegetated areas appear to exhibit greater species diversity and are preferred by aquatic species. Many species are also found in great numbers over sandy substrates. Most fish species of Coos Bay use the flats of the lower bay at some time during the year. Sediments of the lower bay are predominately sand. Subtidal habitats include unconsolidated bottom substrates of the dredged ship channel and adjacent areas and aquatic beds in shallower areas.”

Wetland functions within the estuary have been affected by dikes, tide gates, roads and railroads, ditches, and dams that restrict tidal flows and/or have changed tidal flow patterns. Agricultural land uses have contributed to erosion of channels and, along with channel armoring, have affected vegetation diversity in wetlands, channel shading, and salmonid habitat function; tidal wetlands have also been affected by excavations and disposal of dredged materials. Extensive filling and diking of Coos Bay and its sloughs, estuaries, and tributaries have changed the form and function of the estuary. Approximately 90% of the salt marshes of Coos Bay have been diked or filled to accommodate industry, residential areas, and agriculture and for dredged material disposal sites (Hoffnagle and Olson 1974).

Dredging of the navigation channel has deepened channels and thereby changed circulation, physical processes, and bathymetry in the systems. In 2017, NMFS consulted with the Corps and found their proposed maintenance dredging of the Federal Navigation Channel would not jeopardize any species or result in adverse modification of any critical habitats (NMFS No. WCR-2016-5055). The Corps removes up to 2,350,000 cubic yards of sediment from Coos Bay annually. The Corps may place some of this material within the bay, particularly when the entrance channel bar is impassable, but the vast majority of the material is taken offshore. Intense development in and around the estuary has impacted the shoreline and intertidal zone by removing vegetation and habitats.

2.5 Effects of the Action

Under the ESA, “effects of the action” are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (see 50 CFR 402.17). In our analysis, which describes the effects of the proposed action, we considered 50 CFR 402.17(a) and (b).

2.5.1 Effects on Designated Critical Habitat

The proposed construction will occur within and adjacent to Coos Bay. The proposed action will affect the lower portion of the Coos Bay fifth-field watershed (HUC# 1710030403), which is designated OC coho salmon and green sturgeon critical habitat. The PBFs essential for OC coho

salmon present in the action area are forage, free of artificial obstruction, natural cover, salinity, water quality, and water quantity. The PBFs for green sturgeon present in the action area are food resources, migratory corridor, sediment quality, water flow, water depth, and water quality.

Potential habitat effects from the proposed action are reasonably certain to include: (1) Temporary and localized reductions in water quality from construction-related suspended sediment; (2) permanent, localized reductions in natural cover and forage/food resources from bulkhead construction; (3) permanent, localized improvements in natural cover and forage/food resources from mitigation actions; and (4) episodic and permanent effects on water quality from pollutants in stormwater runoff. These effects are described in greater detail below.

Construction-related suspended sediment (water quality PBFs)

The Airport will construct a cofferdam to isolate the area needed for bulkhead installation. The substrate in the cofferdam footprint is mostly fines, which are susceptible to becoming suspended in the water column. Construction and removal of the cofferdam will cause short-term increases of suspended sediment in Coos Bay (two periods up to eight hours each). The suspended sediment plume is likely to extend up to 250 feet from shore and 1,000 feet from the cofferdam area. Because the Airport will time this work with outgoing tides, suspended sediment will only affect areas west of the cofferdam. Therefore, construction-related suspended sediment will have a localized, temporary negative effect on the water quality PBFs.

Habitat displacement from bulkhead installation (natural cover and forage/food resources PBFs)

The Airport will fill 0.07 acres of Coos Bay tidelands (lands submerged at high tide but exposed at low tide) to construct the bulkhead. This constitutes a permanent loss of habitat used for sheltering and feeding. Coos Bay has approximately 4,569 acres of tidelands (ODEQ 2004). Therefore, bulkhead construction will eliminate 0.0015% of available similar habitat. This constitutes a permanent, but small and localized negative effect on the natural cover and forage/food resources PBFs.

Habitat improvement from mitigation actions (natural cover and forage/food resources PBFs)

The Airport will improve 0.17 acres of Coos Bay tidelands by removing an abandoned boat ramp and creosote-treated wood pilings. Mitigation activities will improve almost 2.5 times the acreage affected by bulkhead installation. This constitutes a permanent, but small and localized positive effect on the natural cover and forage/food resources PBFs.

Contaminant discharge from stormwater systems (water quality PBFs)

The Airport will decrease the total amount of impervious surfaces on their property by 0.04 acres. They will also treat 0.89 acres of previously untreated impervious surfaces. Stormwater runoff from impervious surfaces delivers a wide variety of pollutants to aquatic ecosystems, such as metals (e.g. copper and zinc), petroleum-related compounds (polycyclic aromatic hydrocarbons - PAHs), and sediment washed off the roads, parking lots, driveways, etc. (Driscoll

et al. 1990, Buckler and Granato 1999, Colman *et al.* 2001, Kayhanian *et al.* 2003, Van Metre *et al.* 2006, Peter *et al.* 2018).

The proposed stormwater treatment method is vegetated biofiltration swales. These swales primarily target sediments and dissolved and particulate metals, although secondary pollutant targets include nutrients, oil, grease, and PAHs (ODOT 2011). Vegetated swales (bioswales) have been shown to reduce total and dissolved copper and zinc concentrations in stormwater (ODEQ 2003, Clary *et al.* 2011). ODEQ (2003) describes bioswale pollutant reduction efficiencies for copper (46%), total and dissolved zinc (63% and 30%), oil/grease (75%), and total suspended solids, including sediment (83%-92%). The exact concentrations of contaminants remaining in the stormwater discharge are unknown and are likely to be highly variable depending on the timing and intensity of individual storm events.

Stormwater runoff only occurs when there is rainfall. The greatest discharge of pollutants is typically during the first-flush storm when rainfall mobilizes pollutants accumulated during dry periods between storms (Kayhanian *et al.* 2003, Lee *et al.* 2004, Soller *et al.* 2005, Kayhanian *et al.* 2008, Nason *et al.* 2011). In Oregon's climate, the most significant of these rain events is the first fall rain; lesser events may occur 2-5 times annually per autumn, winter, or spring, given the seasonality of precipitation patterns in Oregon.

There is a lot of uncertainty regarding the duration of elevated stormwater pollutant concentrations during first-flush events, largely due to the inherent unpredictability and natural variability in rainfall events. In general, the elevated concentrations of stormwater pollutants associated with first-flush events occurs within the first few minutes and up to the first hour after detection of observable runoff (Tiefenthaler and Schiff 2003, Stenstrom and Kayhanian 2005). Therefore, adverse effects on water quality from stormwater will occur at their greatest intensity in the fall after the first significant precipitation. However, they will also occur at lower intensity episodically throughout the remainder of the year.

The proposed action will result in less untreated impervious surface and less stormwater contaminants than are delivered to Coos Bay currently. However, the treatment is not 100% effective and stormwater contaminants will still be delivered to Coos Bay. The amount of contaminants generated from the surfaces will be small because the AARF facility has very low traffic and the stormwater is treated to current standards. While some action-related contaminants are likely to disperse throughout the lower bay, measurable amounts are unlikely further than a few feet (maximum of 10 feet) from the outfall. This is due to the low concentrations of contaminants from the proposed action and the overwhelming volume of water in Coos Bay relative to the discharge of the outfall. Therefore, stormwater discharge will have a permanent, but small and localized negative effect on the water quality PBFs.

Summary of effects on critical habitats

Cofferdam installation will result in temporary and localized negative effects on the water quality PBF from construction-related suspended sediment. Bulkhead installation will result in a permanent, but small and localized negative effect on the natural cover and forage/food resources PBFs. Mitigation activities will result in a permanent, but small and localized positive effect on

the natural cover and forage/food resources PBFs. Stormwater discharge will have a permanent, but small and localized negative effect on the water quality PBFs.

2.5.2 Effects on Species

Exposure

In our analysis of the effects of the action on critical habitat, we found adverse effects on water quality, natural cover, and forage/food resources. To understand how listed species present in the action area respond to these effects, we must first understand how these species will be exposed to the effects. Individuals of these species do not reside in the Coos Bay portion of the action area year round.

OC coho salmon. Historically, researchers believed juvenile coho salmon rear in freshwater streams for a year, migrating out to sea in the spring at age 1. More recently, the flexibility of pre-smolt coho salmon life histories, including estuary rearing during all parts of the year, has been documented (Bennett *et al.* 2014). Miller and Sadro (2003) observed pre-smolt OC coho salmon entering the estuary in the South Slough of Coos Bay during spring and remaining up to 8 months, when they moved back upstream to overwinter. They also found pre-smolts moving into the estuary in the fall and winter with individuals having a mean residence time of 48 to 64 days per year.

However, these results were from the stream-estuary ecotone portion of the estuary where salinities are low (maximum 10 parts per thousand). Waters in the action area will have much higher salinities, approaching full strength sea water (around 35 parts per thousand) during the summer months. Salinity in the action area all year around is likely higher than the incipient lethal threshold (22 parts per thousand) for pre-smolt coho salmon (Otto 1971). Therefore, pre-smolt juvenile OC coho salmon may be in these portions of the action area throughout the year, but any one individual is unlikely to remain in it for more than a few days. When they are present, pre-smolts will be seeking habitats for refuge and feeding.

The juvenile pre-smolts begin their physiological change to smolts the spring after they are born. From February through June, the smolts migrate through the action area on the way to the ocean. Miller and Sadro (2003) found the mean residence time in the lower estuary of South Slough was 5.2 days. Those smolts could have moved through within 24 hours, but choose to remain, likely as the final physiological preparation for ocean salinities (Miller and Sadro 2003). This time period is applicable to residence times for OC coho salmon smolts in the action area, as the physical features are the same. As with pre-smolts, smolts will likely favor the shorelines where the habitat types occur that provide feeding and sheltering.

From September to December, adult OC coho salmon return from the ocean and pass through the action area. These returning adults are highly mobile, use the tide to their advantage, and are unlikely to require more than an hour to traverse through the action area.

Green sturgeon. Green sturgeon use the Coos River estuary for subadult and adult growth, development, and migration. Green sturgeon congregate in coastal waters and estuaries,

including non-natal estuaries. Beamis and Kynard (1997) suggested that green sturgeon move into estuaries of non-natal rivers to feed. Data from Washington studies indicate that green sturgeon will only be present in estuaries from June until October (Moser and Lindley 2007). Recent fieldwork indicates that green sturgeon generally inhabit specific areas of coastal estuaries near or within deep channels or holes, moving into the upper reaches of the estuary, but rarely into freshwater (WDFW and ODFW 2012). Green sturgeon in these estuaries may move into tidal flats areas, particularly at night, to feed (Dumbauld *et al.* 2008).

When they are not feeding in the shallows, green sturgeon likely will be holding in the deepest habitat available (WDFW and ODFW 2012). In Coos Bay, the navigational channel is maintained at 37 feet below mean lower low water and runs adjacent to the entire length of the action area. It is likely that a few green sturgeon will feed in the action area or swim through it on their way to or from feeding.

Eulachon. Eulachon have been observed in the Coos River (Gustafson *et al.* 2010), but likely occur on an infrequent basis and in small numbers (Monaco *et al.* 1990, Emmett *et al.* 1991, Hutchinson 1979 as cited in Gustafson *et al.* 2010). On March 3, 2015, a pre-spawn female was collected in a screw trap being operated in Winchester Creek, a tributary of South Slough within Coos Bay.¹ Eulachon spawners have returned in the Columbia River as early as mid-December to as late as mid-February, with an average of mid-January (Gustafson *et al.* 2010). First appearance of eulachon spawners in the Coos River has not been studied, but based on the available information for eulachon run-timing, small numbers of spawners, and frequency of occurrence, adult eulachon will probably migrate through the action area from mid-January through May. Individual adults will likely only be in the action area for an hour or two as they swim upstream to spawning habitat.

Eggs hatch in 20 to 40 days and larval eulachon, which are feeble swimmers, are carried downstream within hours or days. Thus, larval eulachon could be present in the action area from February through June. Some studies found larval eulachon may be retained for weeks or months in inlets or fjords of estuaries on the British Columbia mainland coast (McCarter and Hay 2003), but no such habitat features exist in the action area. The action area is a constriction between the ocean and the large upper Coos Bay. Therefore, individual larval eulachon will likely only be present an hour or two in the action area as they are carried out to sea. These individuals are unlikely to be feeding while in the action area as larval nutrition is provided by the yolk sac prior to first feeding (WDFW and ODFW 2001).

Construction-related suspended sediment

Of key importance in considering the detrimental effects of suspended sediment on fishes are the concentration and duration of the exposure. High levels of suspended sediment can be lethal; lower levels can cause chronic sublethal effects including loss or reduction of foraging capability, reduced growth, reduced resistance to disease, reduced respiratory ability, increased stress, and interference with cues necessary for homing and migration (Bash *et al.* 2001). Sublethal effects (such as olfactory effects) are those that are not directly or immediately lethal,

¹ Email from Gary Vonderohe, ODFW, to Ken Phippen, NMFS, March 5, 2015, (notifying NMFS of the collection of a eulachon in Coos Bay)

but are detrimental and have some probability of leading to eventual death via behavioral or physiological disruption. These responses can include changes in territorial behavior, alarm reactions with downstream displacement and increased predation and competition, avoidance behavior, decreased feeding, and reduced growth (Noggle 1978, Berg 1983, Lloyd 1987, Newcombe and Jensen 1996, Bash *et al.* 2001, Robertson *et al.* 2006).

We anticipate the proposed action will result in two occurrences of a 250-foot wide, 1,000-foot long suspended sediment plume up to 8 hours in duration.

OC coho salmon. Robertson *et al.* (2006) completed a literature review on coho salmon juveniles and found the following effects for suspended sediment concentrations and durations:

- Mortality – 96 hour exposure to concentration greater than 100,000 milligrams per liter (mg/L) killed 50% of individuals
- Gill damage – 96 hour exposure to concentrations greater than 40,000 mg/L
- Coughing – 96 hour exposure to concentrations of 240 mg/L
- Stress – 7 day exposure to concentrations of 2,000 mg/L
- Reduced feeding – 7 day exposure to concentrations of 2,000 mg/L

All three life stages of OC coho salmon could be in the action area during the suspended sediment plumes. A portion of the suspended sediment plumes will likely have sufficient concentration and duration to illicit coughing, stress, reduced feeding, and gill damage. We expect this portion to be 100-foot wide and 300-foot long. Mortality is unlikely due to short duration (8 hours). Quantifying the number of individuals exposed to adverse concentrations of suspended sediment is very difficult for several reasons. Density of any of the life stages in Coos Bay is low and their locations hard to predict. The plumes will only effect a narrow strip, approximately 250 feet wide, and coho salmon are known to move and avoid suspended sediment plumes (Servizi and Martens 1992). Also, the portion of the action area affected by the plumes is extremely small (0.01% of Coos Bay tidelands) and has no features to congregate or hold any of the life stages. Therefore, while we cannot predict the exact number of OC coho salmon affected precisely, we are reasonably certain it will be a small number.

Green sturgeon. Due the in-water work timing, exposure of green sturgeon to suspended sediment plumes is not reasonably certain.

Eulachon. Due to the in-water work timing, exposure of larval eulachon to suspended sediment plumes is not reasonably certain. While adequate information exists to analyze the effect of suspended sediment on coho salmon, little exists for adult eulachon. In the absence of information we assume, because of their similar size, the thresholds for effects on adult eulachon are similar to those for juvenile coho salmon. However, adult eulachon will only be actively migrating through the action area and unlikely to spend more than an hour or two exposed to the plumes. Thus, individuals may experience coughing, stress, and gill damage, but mortality is unlikely due to the short duration of exposure.

Quantifying the number of individuals exposed to adverse concentrations of suspended sediment is very difficult for several reasons. Density of adult eulachon is extremely low due to their infrequent basis and small numbers in Coos Bay and the portion of the action area affected by

the plumes is extremely small (0.01% of Coos Bay tidelands). Therefore, while we cannot predict the exact number of eulachon affected precisely, we are reasonably certain it will be a small number.

Habitat displacement from bulkhead installation

Bulkhead construction will permanently eliminate 0.07 acres of Coos Bay's tidelands.

OC coho salmon. All life stages of OC coho salmon use this area for migration. The new bulkhead is located on the edge of the channel where a bulkhead already exists. There will not be a change to any flow or habitat condition that will impede migration or movement.

Juvenile and smolt OC coho salmon use the bulkhead area for feeding and sheltering. Because the shoreline habitat constructed by the new bulkhead is similar to that of the old bulkhead, its value for sheltering is likely similar. There are also no significant habitat features or forage in the area eliminated by the bulkhead, so few individuals are likely to congregate or remain feeding for extended periods. Therefore, the adverse effects of losing 0.07 acres of tidelands (0.01% of similar habitat in Coos Bay) will result in loss of forage to OC coho salmon, but will only affect a small number. Because these 0.07 acres are a small portion of the action area, and OC coho salmon juveniles and smolts are unlikely to spend much time in the action area (juveniles for no more than a few days, smolts on average 5.2 days), we find the loss of forage from the proposed action is not reasonably certain to result in changes to their growth or survival rates.

Green sturgeon. Subadult and adult green sturgeon may use this area for movement. The new bulkhead is located on the edge of the channel where a bulkhead already exists. There will not be a change to any flow or habitat condition that will impede migration or movement.

Subadult and adult green sturgeon also use the bulkhead area for feeding. Because the area is small and has no particularly important forage resources, it is unlikely any individual green sturgeon will preferentially choose it over the rest of the 4,569 acres of tidelands in Coos Bay. The loss of 0.07 acres of tidelands (0.01% of similar habitat in Coos Bay) will result in loss of forage to green sturgeon, but this loss is so small it is not reasonably certain to result in changes to their growth or survival rates.

Eulachon. Adult and larval eulachon migrate past the bulkhead area. The new bulkhead is located on the edge of the channel where a bulkhead already exists. There will not be a change to any flow or habitat condition that will impede eulachon migration.

Habitat improvement from mitigation actions

The Airport will improve 0.17 acres of Coos Bay tidelands constituting a permanent, but small and localized positive effect.

OC coho salmon. All life stages of OC coho salmon use the mitigation area for migration. Removing the boat ramp and pilings will improve passage. However, this area is small and located just off the main channel of Coos Bay where most migrating individuals may not go.

Juvenile and smolt OC coho salmon use the mitigation area for feeding and sheltering. The area is small, but has habitat features (such as eelgrass) that provide significant sheltering and forage resources. Thus, the positive effects of improving these 0.17 acres will result in a disproportionately large positive effect on OC coho salmon, albeit still small because the area is such a small proportion of Coos Bay. Therefore, the effects from mitigation on migration, feeding, and sheltering of OC coho salmon are small, but likely to result in slight improvements of growth and survival rates.

Green sturgeon. Subadult and adult green sturgeon use the mitigation area for movement and feeding. The area is small, but has habitat features (such as eelgrass) that provide significant forage resources. Therefore, the positive effects of improving these 0.17 acres will result in a disproportionately large positive effect on green sturgeon, albeit still small because the area is such a small proportion of Coos Bay. Therefore, the effects from mitigation on movement and feeding of green sturgeon are small, but likely to result in slight improvements of growth and survival rates.

Eulachon. Adult and larval eulachon use the mitigation area for migration. Removing the boat ramp and pilings will improve passage. However, this area is small and located just off the main channel of Coos Bay where most migrating individuals will not go. Therefore, the positive effects to OC coho salmon migration will be small.

Contaminant discharge from stormwater systems

As discussed in Section 2.5.1, the proposed action will result in less untreated impervious surface and less stormwater contaminants than are delivered to Coos Bay currently. However, the treatment is not 100% effective and a small amount of stormwater contaminants will still be delivered to Coos Bay. Measurable amounts are not reasonably certain further than a few feet (maximum of 10 feet) from the outfall.

Stormwater pollutants are a source of potent adverse effects on fish, even at ambient levels (Loge *et al.* 2006, Spromberg and Meador 2006, Hecht *et al.* 2007, Johnson *et al.* 2007, Sandahl *et al.* 2007). These pollutants can accumulate in prey and in tissues of fish where, depending on the level of exposure, they cause a variety of lethal and sublethal effects. These adverse effects include disrupted behavior, reduced olfactory function, immune suppression, reduced growth, disrupted smoltification, hormone disruption, disrupted reproduction, cellular damage, and physical and developmental abnormalities (Fresh *et al.* 2005, Hecht *et al.* 2007, LCREP 2007). Aquatic contaminants often travel long distances in solution or attached to suspended sediments, or gather in sediments until they are mobilized and transported by the next high flow (Anderson *et al.* 1996, Alpers *et al.* 2000a, 2000b).

Most published literature addresses acute toxicity of single pollutants, although pollutants from stormwater exist in mixtures and interact with each other (e.g., Niyogi *et al.* 2004, Feist *et al.* 2011). Rand and Petrocelli (1985) state that in “assessing chemically induced effects (responses), it is important to consider that organisms may be exposed not to a single chemical but rather to a myriad or mixture of different substances at the same or nearly at the same time.” Environmental conditions (i.e., non-chemical conditions) can also influence the toxicity of pollutants and fish

vulnerability by altering susceptibility to pollutants (Brooks *et al.* 2012, Laetz *et al.* 2014). Exposure to two or more pollutants simultaneously may produce a response that is simply additive of the individual responses or one that is greater (synergistic) or less (antagonistic) than expected from the addition of their individual responses (Denton *et al.* 2002, Laetz *et al.* 2013). For example, mixtures of zinc and copper have greater than additive toxicity to a wide variety of aquatic organisms including freshwater fish (Eisler 1993). Although the large number of pollutants and much larger number of toxicological interactions in stormwater make specific mechanisms of toxicological effects on fish difficult to predict, there is ample evidence that the mixture of toxins in stormwater can degrade habitat enough to substantially reduce its ability to support salmon spawning, feeding, and growth to maturity.

For example, Baldwin *et al.* (2003) exposed juvenile coho salmon to various concentrations of copper to evaluate sublethal effects on sensory physiology, specifically olfaction. These researchers demonstrated that short pulses of dissolved copper at concentrations as low as 2 micrograms per liter ($\mu\text{g/L}$) over experimental background concentrations of 3 $\mu\text{g/L}$ reduced olfactory sensory responsiveness within 20 minutes such that the response evoked by odorants was reduced by approximately 10%. At 10 $\mu\text{g/L}$ over background, responsiveness was reduced by 67% within 30 minutes. They calculated neurotoxic thresholds sufficient to cause olfactory inhibition at 2.3-3.0 $\mu\text{g/L}$ over background. They also referenced three studies that reported copper exposures over four hours caused cell death of olfactory receptor neurons within rainbow trout, Atlantic salmon, and Chinook salmon. The concentrations tested are lower than common concentrations in stormwater outfalls, and thus indicate toxicity even after stormwater has been moderately diluted. The measured exposure times are likewise shorter than typical stormwater outfall discharge times. Inhibiting olfaction is detrimental to fish because olfaction plays a significant role in the recognition and avoidance of predators and migration back to natal streams to spawn (Baldwin *et al.* 2003). Additional research indicates that the effect of 2 $\mu\text{g/L}$ concentrations over experimental background concentrations of 3 $\mu\text{g/L}$ reduces the survival of individuals (Hecht *et al.* 2007). Juvenile wild coho salmon exposed to low levels of dissolved copper did not display an alarm response (i.e., sharp reduction of swimming activity) in the presence of a predator or in response to other olfactory signals as compared to unexposed wild juveniles (McIntyre *et al.* 2012). Predators were also more successful in capturing copper-exposed juvenile coho salmon (McIntyre *et al.* 2012).

Also, fish embryos and larvae exposed to PAHs are likely to experience adverse changes in heart physiology and morphology, including pericardial edema and heart failure, leading to mortality, even with only temporary exposure to low concentrations (Hicken *et al.* 2011, Incardona *et al.* 2012, Brette *et al.* 2014, Incardona *et al.* 2014). Although exposed embryos and larvae may grow to look like normal fish on the outside, internally there are subtle changes in heart shape and also a significant reduction in swimming performance reducing individual survival due to long-term physiological impairment (Hicken *et al.* 2011). Reduced larval feeding associated with pericardial edema can lead to death during the transition period to juvenile stages (Hicken *et al.* 2011). Other individuals may experience a disturbance in heartbeat rhythm (Brette *et al.* 2014). Cardiotoxic PAHs are present in urban stormwater; their sources include vehicle exhaust, fuel spills, oil and grease, treated wood, and coal dust (N. Scholz, pers comm., Northwest Fisheries Science Center, Ecotoxicology Program Manager, February 2, 2014).

OC coho salmon. Some individuals of all life stages of OC coho salmon will be exposed to project-related stormwater contaminants at some time. It is not reasonably certain that adults will require more than a few seconds to migrate through the affected area, so they are unlikely to experience any effects. Adverse effects to juveniles and smolts are reasonably certain to include a variety of sublethal and behavioral effects that will reduce growth, fitness, and survival. Sublethal effects (such as olfactory effects) are those that are not directly or immediately lethal, but are detrimental and have some probability of leading to eventual death via behavioral or physiological disruption.

Quantifying the number of juvenile and smolt OC coho salmon experiencing adverse effects caused by project-related stormwater pollutants is impractical. This is because the area affected by measureable amounts of project contaminants is so small and the distribution and abundance of individuals in the action area is inexact and show wide, random variations due to biological and environmental processes operating at much larger demographic and regional scales. Additionally pollutant exposure is episodic and densities of coho salmon near the outfall are likely to vary significantly over short periods of time (minutes to hours).

Although calculating the exact number of OC coho salmon exposed to measurable levels of project-related stormwater pollutants is impracticable, we are confident the number is small. This is primarily because the affected area is only 157 square feet (calculated as a 10-foot semicircle), which is approximately 0.00001% of the 4,569 acres of tidelands in Coos Bay. Also, few juveniles or smolts are likely to remain in the area for extended periods since there are no significant habitat features or forage.

Green sturgeon. Some individual subadult and adult green sturgeon are reasonably certain to enter the 157 square-foot area at some time looking for forage. Because the area is small (approximately 0.00001% of the 4,569 acres of tidelands in Coos Bay) and has no particularly important forage resources, it is unlikely any individual green sturgeon will remain for an extended period. Therefore, any sublethal effects to individual green sturgeon are not guaranteed, and if they occur, will only affect a small number of individuals.

Eulachon. Adult and larval eulachon migrate past the outfall area. Because the measurable effects from stormwater contaminants extend only a few feet (up to 10 feet) from the shore and the channel is 2,500 feet across at its narrowest, only a very small portion of migrating eulachon will be exposed. It is not reasonably certain for any adult eulachon swimming that close to shore to need more than a few seconds to migrate through the area, and are unlikely to experience any sublethal effects. Larval eulachon, carried on the tide, may spend a few minutes in the measurably affected area. Because of their larval state, they are likely more susceptible than fish in the research cited above and at least some individuals are reasonably certain to experience sublethal effects from project-related stormwater contaminants. However, the number of larval eulachon affected will be small as they should be well dispersed across the channel and the affected area only encompasses approximately 0.4% (10 feet of the 2,500-foot width).

Summary of effects on species

A small number of OC coho salmon and adult eulachon will experience sublethal effects from exposure to construction-related suspended sediment. Bulkhead installation will result in a permanent loss of 0.07 acres of tideland in Coos Bay (0.01% of similar habitat), which will result in a small loss of forage for green sturgeon and juvenile and smolt OC coho salmon. However, the loss is so small it is not reasonably certain to change their growth or survival rates. The effects from mitigation on OC coho salmon and green sturgeon are small, but likely to result in slight improvements of growth and survival rates. Project-related stormwater contaminants are likely to result in sublethal effects to a small number of juvenile and smolt OC coho salmon, green sturgeon, and larval eulachon.

2.6 Cumulative Effects

“Cumulative effects” are those effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR 402.02 and 402.17(a)). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA. We were unable to identify any specific future non-Federal actions reasonably certain to occur that would affect the action area.

The contribution of non-Federal activities to the current condition of ESA-listed species and designated critical habitats within the action area was described in the Status of the Species and Critical Habitats and Environmental Baseline sections, above. Some continuing non-Federal activities are reasonably certain to contribute to climate effects within the action area. However, it is difficult if not impossible to distinguish between the action area’s future environmental conditions caused by global climate change that are properly part of the environmental baseline vs. cumulative effects. Therefore, all relevant future climate-related environmental conditions in the action area are described in the environmental baseline (Section 2.4).

Information from Willapa Bay and Grays Harbor in Washington and Tillamook, Yaquina, and Coos bays in Oregon show that coastal communities are growing more slowly than the respective states overall, populations are relatively old, and the extractive natural resource industries (fishing, aquaculture, agriculture, forest products) are declining in importance relative to tourism, recreation, and retirement industries (Hupert *et al.* 2003). Between 2010 and 2019, the population of Coos County increased by 2.3% from 63,043 in 2010 to 64,487 in 2019.²

These trends suggest human uses of the estuaries are changing in character (Hupert *et al.* 2003). Residents choose to live in these communities to enjoy the views and scenery, experience rural living, to be near the ocean, and to recreate outdoors (Hupert *et al.* 2003). However, increased tourism and residential development can also impact estuary shorelines, water quality, and wildlife (Hupert *et al.* 2003).

² U.S. Census Bureau, State and County Quickfacts, Jackson County. Any county available: <https://www.census.gov/quickfacts/fact/table/US/PST045219>. (Last Accessed May 2020).

The City of Coos Bay developed a land use plan in 2000 to guide future development. The plan postulates that: 1) The city will experience renewed growth from in-migration and commercial employment, 2) Additional housing will be needed, 3) Commercial and industrial areas will need to be redeveloped, and 4) Waterfront areas are an asset to commercial ventures.

The Coos Bay Estuary Management Plan (Plan) sets out the basis of land, water use, and community development regulations for lands lying within the estuary and its shorelands, as designated within the Plan. It designates appropriate areas for the location of various existing and future uses and activities. These plans postulate that there will be some growth in the future that may affect the quality of habitat within the Coos Bay estuary. However, these growth plans may or may not come to fruition.

Despite changes to less consumptive use of estuary resources, future uses are reasonably certain to continue to have a depressive effect on aquatic habitat quality in the action area. Given the increasing ability for the restoration community at funding and implementing activities, restoration and recovery actions are also reasonably certain to continue. These activities are likely to provide significant benefits to habitat quality, albeit on a project by project basis.

When we consider all these influences collectively, we expect trends in habitat quality to remain flat or improve gradually over time. In turn, this habitat trend will, at best, have a positive influence on population abundance and productivity for the species considered in this consultation. In a worst case scenario, we expect cumulative effects will have a relatively neutral effect on population abundance trends. Similarly, we expect the quality and function of critical habitat PBFs to express a slightly positive to neutral trend over time as a result of the cumulative effects.

2.7 Integration and Synthesis

The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action (Section 2.5) to the environmental baseline (Section 2.4) and the cumulative effects (Section 2.6), taking into account the status of the species and critical habitat (Section 2.2), to formulate the agency's biological opinion as to whether the proposed action is likely to: 1) Reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or 2) appreciably diminish the value of designated or proposed critical habitat as a whole for the conservation of the species.

2.7.1 Critical Habitat

OC coho salmon and green sturgeon have designated critical habitat within the action area. The value of PBFs for their critical habitat has declined due to numerous factors, mostly related to human development. For OC coho salmon, critical habitat major limiting factors include extensive loss of access to habitats and habitat changes resulting from land use practices. For green sturgeon, the major limiting factor in coastal bays and estuaries is prey reduction.

The environmental baseline has been degraded by the effects of past land use, urbanization, and water development. The long-term decline of species inhabiting these areas reflects deteriorated critical habitat conditions. Many of the changes to critical habitat resulting from land use practices over the last 150 years have stabilized, but continue to hinder recovery of the populations. Restoration activities have gained popularity in recent decades. Restoration actions may have short-term adverse effects, but generally result in long-term improvements to critical habitat conditions. Climate change is reasonably certain to exacerbate degraded conditions, including sea level rise.

As described in the analysis of the effects of the action, the proposed action will result in adverse impacts to OC coho salmon and green sturgeon critical habitat. Cofferdam installation will result in temporary and localized negative effects. Bulkhead installation and stormwater discharge will result in a permanent, but small and localized negative effect. Mitigation activities will result in a permanent, but small and localized positive effect on approximately the same acreage.

Cumulative effects from future state and private activities are reasonably certain to have a neutral to slightly positive effect over time on the critical habitat considered in this opinion. Resource-based activities will continue to adversely affect habitat, but industry-wide standards and shifts away from resource extraction will gradually decrease their effects over time. The human population in the action area is expected to continue to increase, counterbalancing the improved extraction standards and shift away from resource extraction to a mixed economy. We expect the public's growing environmental awareness will reduce the impacts of some activities affecting critical habitat. As interest in restoration activities continues, their positive effects are likely to continue.

Because the adverse effects caused by the proposed action are short-term or small in scale and the beneficial effects are long-term and similar in spatial scale, when we add them to the current population status, environmental baseline, and consider cumulative effects and climate change, we find the proposed action will not appreciably diminish the value of any critical habitat for the conservation of either species at the designation level. Thus, the critical habitats will retain their current ability to play their intended conservation role.

2.7.2 Species

The status of each species considered in this opinion varies considerably from high risk to moderate risk. The species addressed in this opinion have declined due to numerous factors. One factor for decline of all species inhabiting the action area is degradation of their habitat. Human development has caused significant negative changes throughout their ranges.

The environmental baseline has been degraded by the effects of past land use, urbanization, and water development. The long-term decline of species inhabiting these areas reflects deteriorated habitat conditions. Many of the habitat changes resulting from land use practices over the last 150 years have stabilized, but continue to hinder recovery of the populations. Restoration activities have gained popularity in recent decades. Restoration actions may have short-term adverse effects, but generally result in long-term improvements to habitat conditions. Climate change is reasonably certain to exacerbate degraded conditions, including sea level rise.

As described in the analysis of the effects of the action, the proposed action is reasonably certain to injure and/or harass a small number of OC coho salmon, eulachon, and green sturgeon. A small number of OC coho salmon and adult eulachon will experience sublethal effects from exposure to construction-related suspended sediment. Bulkhead installation will result in a permanent loss of 0.07 acres of tideland in Coos Bay (0.01% of similar habitat), which will result in a small loss of forage for green sturgeon and juvenile and smolt OC coho salmon. However, the loss is so small it is not reasonably certain to change their growth or survival rates. The effects from mitigation on OC coho salmon and green sturgeon are small, but likely to result in slight improvements of growth and survival rates. Project-related stormwater contaminants are likely to result in sublethal effects to a small number of juvenile and smolt OC coho salmon, green sturgeon, and larval eulachon.

Cumulative effects from future state and private activities are reasonably certain to have a neutral to slightly positive effect over time on the species considered in this opinion. Resource-based activities will continue to adversely affect species, but industry-wide standards and shifts away from resource extraction will gradually decrease their effects over time. The human population in the action area is expected to continue to increase, counterbalancing the improved extraction standards and shift away from resource extraction to a mixed economy. We expect the public's growing environmental awareness will reduce the impacts of some activities affecting listed species. As interest in restoration activities continues, their positive effects are likely to continue.

For OC coho salmon, at the ESU scale, the status of individual populations determines the ability of the species to sustain itself or persist well into the future, thus impacts to individual populations are important to the survival and recovery of the species. Because the adverse effects caused by the proposed action are short-term or small in scale and the beneficial effects are long term and similar in scale, when we add them to the current population status, environmental baseline, and consider cumulative effects and climate change, we find the proposed action will not appreciably reduce the likelihood of the survival or recovery of the Coos River population of OC coho salmon. Given our conclusion that the populations will not be impeded in recovery as a result of the proposed action, the proposed action will also not appreciably reduce the likelihood of the survival or recovery of OC coho salmon at the ESU level.

For eulachon, at the DPS scale, we found the adverse effects caused by the proposed action are short-term or small in scale and the beneficial effects are long term and similar in scale. When we add those effects to the current subpopulation status, environmental baseline, and consider cumulative effects and climate change, we find the proposed action will not appreciably reduce the likelihood of the survival or recovery of the Columbia River subpopulation. Given our conclusion that this subpopulation will not be impeded in recovery as a result of the proposed action, the proposed action will also not appreciably reduce the likelihood of the survival or recovery of eulachon at the DPS level.

The DPS of green sturgeon contains one population. Because the adverse effects caused by the proposed action are short-term or small in scale and the beneficial effects are long-term and similar in scale, when we add them to the current population status, environmental baseline, and consider cumulative effects and climate change, we find the proposed action will not appreciably reduce the likelihood of the survival or recovery of the Sacramento River spawning population.

Because the population is the DPS, the proposed action will also not appreciably reduce the likelihood of the survival or recovery of southern DPS green sturgeon.

2.8 Conclusion

After reviewing and analyzing the current status of the listed species and critical habitats, the environmental baseline within the action area, the effects of the proposed action, the effects of other activities caused by the proposed action, and cumulative effects, it is NMFS' biological opinion that the proposed action is not likely to jeopardize the continued existence of OC coho salmon, green sturgeon, or eulachon, or destroy or adversely modify designated critical habitat for OC coho salmon or green sturgeon.

2.9 Incidental Take Statement

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). "Incidental take" is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and section 7(o)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this ITS.

The NMFS has not yet promulgated an ESA section 4(d) rule prohibiting take of threatened eulachon. Anticipating that such a rule may be issued in the future, we have included a prospective incidental take exemption for eulachon. The elements of this ITS for eulachon would become effective on the date on which any future 4(d) rule prohibiting take of eulachon becomes effective. Nevertheless, the amount and extent of eulachon incidental take, as specified in this statement, will serve as one of the criteria for reinitiation of consultation pursuant to 50 C.F.R. § 402.16(a), if exceeded.

2.9.1 Amount or Extent of Take

In the biological opinion, NMFS determined that incidental take is reasonably certain to occur as harm from suspended sediment releases during cofferdam construction and removal and stormwater runoff from impervious surfaces. Incidental take from suspended sediment plumes will occur in an area extending 100 feet out from the cofferdam area and 300 feet downstream. Incidental take from stormwater discharge will occur within 10 feet of the outfall.

Take caused by the habitat-related effects of this action cannot be accurately quantified as a number of fish because the abundance of these species occurring within the areas affected at the time when the effects occur are not readily predictable. These unpredictable factors include

precipitation events, tidal elevations and flow, time of day, time of year, competition, predation, and the previous year's spawning success. In such circumstances, we use take surrogates causally linked to the expected level and type of incidental take from the proposed action. For the proposed action, the best available surrogates are:

Suspended sediment plumes during cofferdam construction and removal. The best available incidental take surrogate for this pathway is the duration of suspended sediment plumes. In the effects analysis, we expected the plume associated with installing and removing the cofferdam will not exceed 8 hours each. This surrogate is connected causally to the amount of take that will occur because an increase in duration (over 8 hours) translates into a proportional increase in the impact to listed species (i.e., exposure time is one factor determining the severity of adverse effects from elevated suspended sediment). The duration of suspended sediment plumes is also easily monitored, allowing the surrogate to serve as a clear reinitiation trigger.

Stormwater runoff from impervious surfaces. The best available incidental take surrogate for this pathway is implementation of a stormwater facility inspection and maintenance plan according to the following specifications. Proper implementation will determine whether the system continues to reduce concentrations of pollutants as designed, and thus reflect the amount of incidental take analyzed in the opinion. This surrogate is appropriate for the proposed action because it has a rational connection to the release of stormwater pollutants that cause take of listed species. Implementation of a plan is also easily monitored, allowing the surrogate to serve as a clear reinitiation trigger.

1. Inspection. Each part of the proposed stormwater system must be inspected:
 - a. For the first three years:
 - i. At least quarterly; and,
 - ii. At least three times per water year within 48-hours following a storm event with more than 0.5 inches of rain over a 24-hour period.
 - b. After three years:
 - i. At least twice a year thereafter; and,
 - ii. At least once per water year within 48-hours following a storm event with more than 0.5 inches of rain over a 24-hour period.
2. Maintenance. Maintenance will bring the system back to original design specifications within 7 days of any of the following occurring:
 - a. Stormwater does not drain out of the biofiltration swales within 24-hours after rainfall ends;
 - b. Any structural component, including inlets and outlets, do not freely convey stormwater;
 - c. Desirable vegetation in the biofiltration swales does not cover at least 90% of the facility any time after 3 years – excluding dead or stressed vegetation, dry grass or other plants, and weeds.

2.9.2 Effect of the Take

In the biological opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to any of the species considered in this opinion or destruction or adverse modification of their critical habitat.

2.9.3 Reasonable and Prudent Measures

“Reasonable and prudent measures” are nondiscretionary measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take (50 CFR 402.02).

1. Minimize incidental take from exposure to suspended sediment.
2. Minimize incidental take from exposure to stormwater pollutants.
3. Conduct monitoring sufficient to document the proposed action does not exceed the parameters analyzed in the effects section or the extent of take described above, and report results to NMFS.

2.9.4 Terms and Conditions

The terms and conditions described below are non-discretionary, and the FAA, Corps, and Airport must comply with them in order to implement the RPMs (50 CFR 402.14). The FAA, Corps, and Airport have a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action will likely lapse.

1. To implement reasonable and prudent measure #1 (suspended sediment), FAA, the Corps, and the Airport shall ensure:
 - a. Suspended sediment monitoring occurs hourly during installation and removal of the cofferdam.
 - b. Suspended sediment monitoring occurs daily for the duration of time the cofferdam is in place.
2. To implement reasonable and prudent measure #2 (stormwater), FAA, the Corps, and the Airport shall ensure the Airport drafts and implements a stormwater facility inspection and maintenance plan that includes:
 - a. Inspection. Each part of the proposed stormwater system must be inspected:
 - i. For the first three years:
 1. At least quarterly; and,
 2. At least three times per water year within 48-hours following a storm event with more than 0.5 inches of rain over a 24-hour period.
 - ii. After three years:
 1. At least twice a year thereafter; and,
 2. At least once per water year within 48-hours following a storm event with more than 0.5 inches of rain over a 24-hour period.

- b. Maintenance. Maintenance will bring the system back to original design specifications within 7 days of any of the following occurring:
 - i. Stormwater does not drain out of the biofiltration swales within 24-hours after rainfall ends.
 - ii. Any structural component, including inlets and outlets, do not freely convey stormwater.
 - iii. Desirable vegetation in the biofiltration swales does not cover at least 90% of the facility any time after 3 years – excluding dead or stressed vegetation, dry grass or other plants, and weeds.
3. To implement reasonable and prudent measure #3 (monitoring and reporting), FAA, the Corps, and the Airport shall ensure the Airport completes the following monitoring and reporting:
 - a. A project completion report within 60-days of completing construction, including:
 - i. Project name
 - ii. Airport contact person
 - iii. FAA contact person
 - iv. Construction completion date
 - v. As-built drawings of all project components
 - vi. Results of the suspended sediment monitoring from T&C #1
 - vii. Square footage of fill installed for the bulkhead
 - viii. Photos of the mitigation areas (including date of photograph, GPS site location of photo point, name of photographer, and other relevant information)
 - b. Annual reports of the stormwater facility inspection and maintenance plan after the first three full years following construction, including the following information:
 - i. Name of person completing each inspection
 - ii. Date of each inspection
 - iii. Findings of each inspection
 - iv. Description of any structural repairs, maintenance, or facility cleanout, e.g., sediment and oil removal and disposal, vegetation management, erosion control, structural repairs or seals, ponding water, pests, trash or debris removal
 - v. An estimate of the percent cover of healthy vegetation in the swales, including a description of any corrective action needed to ensure 90% coverage within three years
 - c. Each of the above reports and/or plans must be submitted annually to NMFS at the following address, no later than September 30:

National Marine Fisheries Service
Attn: WCRO-2019-03422
2900 NW Stewart Parkway
Roseburg, Oregon 97471

2.10 Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02). The following conservation recommendation is a discretionary measure that we believe is consistent with this obligation and therefore should be carried out by the FAA:

1. The FAA should consider initiating and completing consultation with NMFS on a programmatic biological opinion that addresses FAA airport improvement projects where they coincide with listed-fish under NMFS' jurisdiction. The primary benefits of programmatic consultation are more consistent use of conservation measures, the ability to address the effects of multiple activities at larger scales, efficient workload management, improved internal communication, better public relations, and a sharper vision of interagency consultation overall.

Please notify NMFS if the FAA carries out this recommendation so that we will be kept informed of actions that are intended to improve the conservation of listed species or their designated critical habitats.

2.11 Reinitiation of Consultation

This concludes formal consultation for the Southwest Oregon Regional Airport Runway Safety Area Improvements project.

As 50 CFR 402.16 states, reinitiation of consultation is required and shall be requested by the Federal agency or by the Service where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental taking specified in the ITS is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action.

3. MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT ESSENTIAL FISH HABITAT RESPONSE

Section 305(b) of the MSA directs Federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. The MSA (section 3) defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or

injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects on EFH may result from actions occurring within EFH or outside of it and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH.

This analysis is based, in part, on the EFH assessment provided by FAA and descriptions of EFH for Pacific Coast groundfish (PFMC 2005), coastal pelagic species (PFMC 1998), and Pacific Coast salmon (PFMC 2014); contained in the fishery management plans developed by the Pacific Fishery Management Council (PFMC) and approved by the Secretary of Commerce.

3.1 Essential Fish Habitat Affected by the Project

The proposed action and the action area for this consultation are described above in Sections 1.3 and 2.3. The action area is also designated by the PFMC as EFH as EFH for coastal pelagic species, Pacific Coast groundfish, and Pacific salmon. The action area is an estuarine area; estuaries are designated by the PFMC as habitat areas of particular concern (HAPC) for groundfish species. While the HAPC designation does not add any specific regulatory process, it does highlight certain habitat types that are of high ecological importance.

3.2 Adverse Effects on Essential Fish Habitat

The ESA portion of this document describes the adverse effects of this proposed action on coho salmon, green sturgeon, and eulachon. This ESA analysis of effects is also relevant to EFH. Based on information provided by the action agency and the analysis of effects presented in the ESA portion of this document, we conclude the proposed action will adversely affect designated EFH for coastal pelagic species, Pacific Coast groundfish, and Pacific salmon. These adverse effects occur from suspended sediment plumes and delivery of contaminants in stormwater.

3.3 Essential Fish Habitat Conservation Recommendations

The following four conservation measures are necessary to avoid, mitigate, or offset the impact of the proposed action on the above described impacts to EFH. Three of these conservation recommendations are a subset of the ESA terms and conditions.

1. FAA, the Corps, and the Airport should minimize adverse effects from suspended sediment by implementing ESA Term and Condition #1 (Section 2.9.4).
2. FAA, the Corps, and the Airport should minimize adverse effects from stormwater contaminants by implementing ESA Term and Condition #2 (Section 2.9.4).
3. FAA, the Corps, and the Airport should ensure completion of a monitoring and reporting program to confirm the program is meeting the objective of limiting adverse effects by implementing ESA Term and Condition #3 (Section 2.9.4).
4. The FAA should consider initiating and completing a programmatic consultation with NMFS that addresses FAA airport improvement projects where they coincide with EFH.

3.4 Statutory Response Requirement

As required by section 305(b)(4)(B) of the MSA, FAA and the Corps must provide a detailed response in writing to NMFS within 30 days after receiving an EFH Conservation Recommendation. Such a response must be provided at least 10 days prior to final approval of the action if the response is inconsistent with any of NMFS' EFH Conservation Recommendations unless NMFS and the Federal agency have agreed to use alternative time frames for the Federal agency response. The response must include a description of measures proposed by the agency for avoiding, minimizing, mitigating, or otherwise offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the Conservation Recommendations, the Federal agency must explain its reasons for not following the recommendations, including the scientific justification for any disagreements with NMFS over the anticipated effects of the action and the measures needed to avoid, minimize, mitigate, or offset such effects (50 CFR 600.920(k)(1)).

In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, we ask that in your statutory reply to the EFH portion of this consultation, you clearly identify the number of conservation recommendations accepted.

3.5 Supplemental Consultation

The FAA and/or the Corps must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH Conservation Recommendations (50 CFR 600.920(l)).

4. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

The DQA specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the opinion addresses these DQA components, documents compliance with the DQA, and certifies that this opinion has undergone pre-dissemination review.

Utility

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended users of this opinion are FAA, the Corps, and the Airport. Other interested users could include citizens of affected areas and others interested in the conservation of the affected ESUs/DPSs. Individual copies of this opinion were provided to FAA and the Corps. The document will be available within two weeks at the NOAA Library Institutional Repository [<https://repository.library.noaa.gov/welcome>]. The format and naming adheres to conventional standards for style.

Integrity

This consultation was completed on a computer system managed by NMFS in accordance with relevant information technology security policies and standards set out in Appendix III, 'Security of Automated Information Resources,' Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

Objectivity

Information Product Category: Natural Resource Plan

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NMFS ESA Consultation Handbook, ESA regulations, 50 CFR 402.01 et seq., and the MSA implementing regulations regarding EFH, 50 CFR 600.

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this opinion and EFH consultation contain more background on information sources and quality.

Referencing: All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

Review Process: This consultation was drafted by NMFS staff with training in ESA and MSA implementation and reviewed in accordance with West Coast Region ESA quality control and assurance processes.

5. REFERENCES

- Abatzoglou, J.T., D.E. Rupp, and P.W. Mote. 2014. Seasonal climate variability and change in the Pacific Northwest of the United States. *Journal of Climate* 27(5):2125-2142.
- Alpers, C.N., H.E. Taylor, and J.L. Domagalski (editors). 2000a. Metals transport in the Sacramento River, California, 1996–1997 - Volume 1: methods and data. U.S. Geological Survey, Water-Resources Investigations Report 99-4286. Sacramento, California.
- Alpers, C.N., R.C. Antweiler, H.E. Taylor, P.D. Dileanis, and J.L. Domagalski. 2000b. Metals transport in the Sacramento River, California, 1996–1997 – Volume 2: interpretation of metal Loads. U.S. Geological Survey, Water-Resources Investigations Report 00-4002. Sacramento, California.
- Anderson, C.W., F.A. Rinella, and S.A. Rounds. 1996. Occurrence of selected trace elements and organic compounds and their relation to land use in the Willamette River Basin, Oregon, 1992–94. U.S. Geological Survey, Water-Resources Investigations Report 96–4234, Portland, Oregon.
- Baldwin, D.H., J.F. Sandahl, J.S. Labenia, and N.L. Scholz. 2003. Sublethal effects of copper on coho salmon: impacts on nonoverlapping receptor pathways in the peripheral olfactory nervous system. *Environmental Toxicology and Chemistry* 22:2266–2274.
- Bash, J., C. Berman, and S. Bolton. 2001. Effects of Turbidity and Suspended Solids on Salmonids. Report No. WA-RD 526.1, Washington State Department of Transportation, Seattle, Washington. 80 p.
- Bennett, T.R., P. Roni, K. Denton, M. McHenry, and R. Moses. 2014. Nomads no more: early juvenile coho salmon migrants contribute to the adult return. *Ecology of Freshwater Fish* 2:264-275.
- Beamis, W.E., and B. Kynard. 1997. Sturgeon rivers: An introduction to acipensiform biogeography and life history. *Environmental Biology of Fishes* 48:167-183.
- Berg, L. 1983. Effects of short-term exposure to suspended sediments on the behavior of juvenile coho salmon. Master's Thesis. University of British Columbia, Vancouver, Canada.
- Berg, A. and Associates. 2013. Jordan Cove Fisheries Report. Ferndale, California. 115 p.
- Brette, F., B. Machado, C. Cros, J.P. Incardona, N.L. Scholz, and B.A. Block. 2014. Crude oil impairs cardiac excitation-contraction coupling in fish. *Science* 343:772-776.

- Brooks, M L., E. Fleishman, L.R. Brown, P.W. Lehman, I. Werner, N. Scholz, C. Mitchelmore, J.R. Lovvorn, M.L. Johnson, D. Schlenk, S. von Drunick, J.I. Drever, D.M. Stoms, A.E. Parker, and R. Dugdale. 2012. Life histories, salinity zones, and sublethal contributions of contaminants to pelagic fish declines illustrated with a case study of San Francisco Estuary, California, USA. *Estuaries and Coasts* 35:603-621.
- Buckler, D.R., and G.E. Granato. 1999. Assessing biological effects from highway-runoff constituents: U.S. Geological Survey Open File Report 99-240, Northborough, Massachusetts. 45 p.
- Clary, J., M. Leisenring, and P. Hobson. 2011. Pollutant category summary: metals. International Stormwater Best Management Practices (BMP) Database. August. 58 p.
- Colman, J.A., K.C. Rice, and T.C. Willoughby. 2001. Methodology and significance of studies of atmospheric deposition in highway runoff: U.S. Geological Survey Open-File Report 01-259, Northborough, Massachusetts, 63 p.
- Crozier, L.G., A.P. Hendry, P.W. Lawson, T.P. Quinn, N.J. Mantua, J. Battin, R.G. Shaw, and R.B. Huey. 2008. Potential responses to climate change in organisms with complex life histories: evolution and plasticity in Pacific salmon. *Evolutionary Applications* 1(2):252-270.
- Crozier, L.G., M.D. Scheuerell, and E.W. Zabel. 2011. Using time series analysis to characterize evolutionary and plastic responses to environmental change: A case study of a shift toward earlier migration date in sockeye salmon. *The American Naturalist* 178 (6):755-773.
- Denton, D.L., C.E. Wheelock, S.A. Murray, L.A. Deanovic, B.D. Hammock, and D.E. Hinton. 2002. Joint acute toxicity of esfenvalerate and diazinon to larval fathead minnows (*Pimephales promelas*). *Environmental Toxicology and Chemistry* 22:336-341.
- Dominguez, F., E. Rivera, D.P. Lettenmaier, and C.L. Castro. 2012. Changes in winter precipitation extremes for the western United States under a warmer climate as simulated by regional climate models. *Geophysical Research Letters* 39(5):L05803.
- Doney, S.C., M. Ruckelshaus, J.E. Duffy, J.P. Barry, F. Chan, C.A. English, H.M. Galindo, J.M. Grebmeier, A.B. Hollowed, N. Knowlton, J. Polovina, N.N. Rabalais, W.J. Sydeman, and L.D. Talley. 2012. Climate change impacts on marine ecosystems. *Annual Review of Marine Science* 4:11-37.
- Driscoll, E.D., P.E. Shelley, and E.W. Strecher. 1990. Pollutant loadings and impacts from highway runoff, Volume III: Analytical investigation and research report. FHWD-RD-88-0088. Federal Highway Administration, Office of Engineering and Highway Operations Research and Development, McLean, Virginia.

- Dumbauld, B.R., D.L. Holden, and O.P. Langness. 2008. Do sturgeon limit burrowing shrimp populations in Pacific Northwest estuaries? *Environmental Biology of Fishes* 83:283-296.
- Eisler, R. 1993. Zinc Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review. U.S. Department of the Interior, Fish and Wildlife Service. Biological Report 10. 106 p.
- Emmett, R.L., S.A. Hinton, S.L. Stone, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in West Coast estuaries, Volume II: Species life history summaries. ELMR Report No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD. 329 p.
- Feely, R.A., T. Klinger, J.A. Newton, and M. Chadsey (editors). 2012. Scientific summary of ocean acidification in Washington state marine waters. NOAA Office of Oceanic and Atmospheric Research Special Report.
- Feist B.E., E.R. Buhle, P. Arnold, J.W. Davis, and N.L. Scholz. 2011. Landscape ecotoxicology of coho salmon spawner mortality in urban streams. *PLoS ONE* 6(8):e23424. doi:10.1371/journal.pone.0023424
- Fresh, K.L., E. Casillas, L.L. Johnson, and D.L. Bottom. 2005. Role of the estuary in the recovery of Columbia River Basin salmon and steelhead: An evaluation of the effects of selected factors on salmonid population viability. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-69, 105 p.
- Glick, P., J. Clough, and B. Nunley. 2007. Sea-Level Rise and Coastal Habitats in the Pacific Northwest: An analysis for Puget Sound, southwestern Washington, and northwestern Oregon. National Wildlife Federation, Seattle, Washington.
- Goode, J.R., J.M. Buffington, D. Tonina, D.J. Isaak, R.F. Thurow, S. Wenger, D. Nagel, C. Luce, D. Tetzlaff, and C. Soulsby. 2013. Potential effects of climate change on streambed scour and risks to salmonid survival in snow-dominated mountain basins. *Hydrological Processes* 27(5):750-765.
- Gustafson, R.G., M.J. Ford, D. Teel, and J.S. Drake. 2010. Status review of eulachon (*Thaleichthys pacificus*) in Washington, Oregon, and California. U.S. Department of Commerce. NOAA Technical Memorandum NMFS-NWFSC-105, 360 p.
- Gustafson, R.G., L. Weitkamp, Y. Lee, E. Ward, K. Somers, V. Tuttle, and J. Jannot. 2016. Status Review Update of Eulachon (*Thaleichthys pacificus*) Listed under the Endangered Species Act: Southern Distinct Population Segment. 121 PP. Available at: https://www.westcoast.fisheries.noaa.gov/publications/status_reviews/other_species/eulachon/eulachon_2016_status_review_update.pdf

- Hecht, S.A., D.H. Baldwin, C.A. Mebane, T. Hawkes, S.J. Gross, and N.L. Scholz. 2007. An Overview of Sensory Effects on Juvenile Salmonids Exposed to Dissolved Copper: Applying a Benchmark Concentration Approach to Evaluate Sublethal Neurobehavioral Toxicity. U.S. Department of Commerce, NOAA Tech. Memo. NMFS-NWFSC-83, 39 p. Available at: www.nwfsc.noaa.gov/assets/25/6696_11162007_114444_SensoryEffectsTM83Final.pdf
- Hicken, C.L., T.L. Linbo, D.W. Baldwin, M.L. Willis, M.S. Myers, L. Holland, M. Larsen, M.S. Stekoll, S.D. Rice, T.K. Collier, N.L. Scholz, and J.P. Incardona. 2011. Sublethal exposure to crude oil during embryonic development alters cardiac morphology and reduces aerobic capacity in adult fish. *Proceedings of the National Academy of Sciences* 108:7086-7090.
- Hoffnagle, J., and R. Olson. 1974. *The salt marshes of the Coos Bay Estuary*. University of Oregon, Oregon Institute of Marine Biology. Charleston. 86 pp.
- Hupert, D.D., R.L. Johnson, J. Leahy, and K. Bell. 2003. Interactions between human communities and estuaries in the Pacific Northwest: trends and implications for management. *Estuaries* 26(48):994-1009.
- Hutchinson, J.M. 1979. Seasonal distribution of fishes in Siuslaw Bay. Oregon Dept. Fish and Wildlife, Corvallis (as cited in Hoffnagle and Olson 1974).
- Incardona, J.P., C.A. Vines, B.F. Anulacion, D.H. Baldwin, H.L. Day, B.L. French, J.S. Labenia, T.L. Linbo, M.S. Myers, O.P. Olson, C.A. Sloan, S.Y. Sol, F.J. Griffin, K. Menard, S.G. Morgan, E.H. Smith, J.E. West, T.K. Collier, G.M. Ylitalo, G.N. Cherr, and N.L. Scholz. 2012. Unexpectedly high rates of early life stage mortality among herring spawned in the 2007 Cosco Busan oil spill impact zone in San Francisco Bay. *Proceedings of the National Academy of Sciences* 109(2):E51-58.
- Incardona, J., L.D. Gardner, T.L. Linbo, T.L. Brown, A.J. Esbaugh, E.M. Mager, J.D. Stieglitz, B.L. French, J.S. Labenia, C.A. Laetz, M. Tagal, C.A. Sloan, A. Elizur, D.D. Benetti, M. Grosell, B.A. Block, and N.L. Scholz. 2014. Deepwater Horizon crude oil impacts the developing hearts of large predatory pelagic fish. *Proceedings of the National Academy of Sciences, USA*. www.pnas.org/cgi/doi/10.1073/pnas.1320950111
- IPCC (Intergovernmental Panel on Climate Change). 2014. *Climate Change 2014: Synthesis Report*. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.
- Isaak, D.J., S. Wollrab, D. Horan, and G. Chandler. 2012. Climate change effects on stream and river temperatures across the northwest US from 1980–2009 and implications for salmonid fishes. *Climatic Change* 113(2):499-524.

- ISAB (Independent Scientific Advisory Board) (editor). 2007. Climate change impacts on Columbia River Basin fish and wildlife. In: Climate Change Report, ISAB 2007-2. Independent Scientific Advisory Board, Northwest Power and Conservation Council. Portland, Oregon.
- Johnson, L.L., G.M. Ylitalo, M.R. Arkoosh, A.N. Kagley, C.L. Stafford, J.L. Bolton, J. Buzitis, B.F. Anulacion, and T.K. Collier. 2007. Contaminant exposure in outmigrant juvenile salmon from Pacific Northwest estuaries. *Environmental Monitoring and Assessment* 124:167-194.
- Kayhanian, M., A. Singh, C. Suverkropp, and S. Borroum. 2003. The impact of annual average daily traffic on highway runoff pollutant concentrations. *Journal of Environmental Engineering* 129(11):975-990.
- Kayhanian, M., C. Stransky, S. Bay, S.-L. Lau, and M.K. Stenstrom. 2008. Toxicity of urban highway runoff with respect to storm duration. *Science of the Total Environment* 389:386-406.
- Kunkel, K.E., L.E. Stevens, S.E. Stevens, L. Sun, E. Janssen, D. Wuebbles, K.T. Redmond, and J.G. Dobson. 2013. Regional climate trends and scenarios for the U.S. National Climate Assessment: Part 6. Climate of the northwest U.S. NOAA Technical Report NESDIS 142-6. National Oceanic and Atmospheric Administration, National Environmental Satellite, Data, and Information Service, Washington, D.C. 83 pp.
- Laetz, C.A., D.H. Baldwin, V.R. Hebert, J.D. Stark, and N.L. Scholz. 2013. The interactive neurobehavioral toxicity of diazinon, malathion, and ethoprop to juvenile coho salmon. *Environmental Science and Technology* 47:2925-2931.
- Laetz, C.A., D.H. Baldwin, V.R. Hebert, J.D. Stark, and N.L. Scholz. 2014. Elevated temperatures increase the toxicity of pesticide mixtures to juvenile coho salmon. *Aquatic Toxicology* 146:38-44.
- Langness O.P., L.L. Lloyd, S.M. Schade, B.J. Cady, L.B. Heironimus, B.W. James, P.E. Dionne, A.M. Claiborne, M.P. Small, and C. Wagemann. 2018. Studies of eulachon in Oregon and Washington: designed to guide implementation of a monitoring program to track coast-wide status and trends in abundance and distribution. Project completion report July 2015- June 2018. NOAA Fisheries Protected Species Conservation and Recovery Grant Number NA14NMF4720009. Fish Program Report Number FPT 18-07. Washington Department of Fish and Wildlife, Columbia River Management Unit, Ridgefield, WA 98642.
- Lawson, P.W., E.A. Logerwell, N.J. Mantua, R.C. Francis, and V.N. Agostini. 2004. Environmental factors influencing freshwater survival and smolt production in Pacific Northwest coho salmon (*Oncorhynchus kisutch*). *Canadian Journal of Fisheries and Aquatic Sciences* 61(3):360-373.

- Lee, H., S.-L. Lau, M. Kayhanian, and M.K. Stenstrom. 2004. Seasonal first flush phenomenon of urban stormwater discharges. *Water Resources* 38:4153–4163.
- Lloyd, D.S. 1987. Turbidity as a Water Quality Standard for Salmonid Habitats in Alaska. *North American Journal of Fisheries Management* 7:34-45.
- Loge, F., M.R. Arkoosh, T.R. Ginn, L.L. Johnson, and T.K. Collier. 2006. Impact of environmental stressors on the dynamics of disease transmission. *Environmental Science & Technology* 39(18):7329-7336.
- LCREP (Lower Columbia River Estuary Partnership). 2007. Lower Columbia River and estuary ecosystem monitoring: Water quality and salmon sampling report. Lower Columbia River Estuary Partnership. Portland, Oregon.
- Mantua, N., I. Tohver, and A. Hamlet. 2009. Impacts of climate change on key aspects of freshwater salmon habitat in Washington State. Pages 217-253 in M.M. Elsner, J. Littell, L. Whitely Binder, editors. *The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate*. The Climate Impacts Group, University of Washington, Seattle, Washington.
- Mantua, N., I. Tohver, and A. Hamlet. 2010. Climate change impacts on streamflow extremes and summertime stream temperature and their possible consequences for freshwater salmon habitat in Washington State. *Climatic Change* 102(1):187-223.
- McCarter, P.B., and D.E. Hay. 2003. Eulachon embryonic egg and larval outdrift sampling manual for ocean and river surveys. Canadian Technical Report of Fisheries and Aquatic Sciences 2451, 33 p.
- McIntyre, J.K., D.H. Baldwin, D.A. Beauchamp, and N.L. Scholz. 2012. Low-level copper exposures increase the visibility and vulnerability of juvenile predators. *Ecological Applications* 22:1460-1471.
- McMahon, T.E., and G.F. Hartman. 1989. Influence of cover complexity and current velocity on winter habitat use by juvenile coho salmon (*Oncorhynchus kisutch*). *Canadian Journal of Fisheries and Aquatic Sciences* 46:1551–1557.
- Meyer, J.L., M.J. Sale, P.J. Mulholland, and N.L. Poff. 1999. Impacts of climate change on aquatic ecosystem functioning and health. *JAWRA Journal of the American Water Resources Association* 35(6):1373-1386.
- Miller, B.A., and S. Sadro. 2003. Residence time and seasonal movements of juvenile coho salmon in the ecotone and lower estuary of Winchester Creek, South Slough, Oregon. *Transactions of the American Fisheries Society* 132:546-559.

- Monaco, M.E., R.L. Emmett, S.A. Hinton, and D.M. Nelson. 1990. Distribution and abundance of fishes and invertebrates in West Coast estuaries. Volume I: Data summaries. ELMR Rep. No. 4, Strategic Assessment Branch, NOS/NOAA. U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service.
- Mora, E.A., R.D. Battleson, S.T. Lindley, M.J. Thomas, R. Bellmer, L.J. Zarri, and A.P. Klimley. 2017. Estimating the annual spawning run size and population size of the southern distinct population segment of green sturgeon. *Transactions of the American Fisheries Society* 147:195–203.
- Moser, M., and S. Lindley. 2007. Use of Washington estuaries by subadult and adult green sturgeon. *Environmental Biology of Fishes* 79:243-253.
- Mote, P.W., J.T. Abatzglou, and K.E. Kunkel. 2013. Climate: Variability and change in the past and the future. Pages 41-58 in M.M. Dalton, P.W. Mote, and A.K. Snover, editors. *Climate change in the northwest: Implications for our landscapes, waters, and communities*. Island Press, Washington, DC.
- Mote, P.W., A.K. Snover, S. Capalbo, S.D. Eigenbrode, P. Glick, J. Littell, R.R. Raymondi, and W.S. Reeder. 2014. Ch. 21: Northwest. Pages 487-513 in J.M. Melillo, T.C. Richmond, and G.W. Yohe, editors. *Climate change impacts in the United States: The Third National Climate Assessment*. U.S. Global Change Research Program.
- Mote, P.W., D.E. Rupp, S. Li, D.J. Sharp, F. Otto, P.F. Uhe, M. Xiao, D.P. Lettenmaier, H. Cullen, and M.R. Allen. 2016. Perspectives on the cause of exceptionally low 2015 snowpack in the western United States, *Geophysical Research Letters*, 43, doi:10.1002/2016GLO69665.
- Nason, J.A., P.O. Nelson, D.J. Bloomquist, and M.S. Sprick. 2011. Copper speciation in highway stormwater runoff as related to bioavailability and toxicity to ESA-listed salmon. Oregon Department of Transportation Final Report. FHWA-OR-RD-11-11. April 2011. 116 p.
- Newcombe, C.P., and J.O.T. Jensen. 1996. Channel suspended sediment and fisheries: A synthesis for quantitative assessment of risk and impact. *North American Journal of Fisheries Management* 16:693-727.
- Niyogi, S., P. Couture, G. Pyle, D.G. McDonald, and C.M. Wood. 2004. Acute cadmium biotic ligand model characteristics of laboratory-reared and wild yellow perch (*Perca flavescens*) relative to rainbow trout (*Oncorhynchus mykiss*). *Canadian Journal of Fisheries and Aquatic Sciences* 61:942–953.
- Noggle, C.C. 1978. Behavioral, physiological and lethal effects of suspended sediment on juvenile salmonids. Master's Thesis. University of Washington, Seattle, Washington.

- NMFS (National Marine Fisheries Service). 2015. Southern Distinct Population Segment of the North American Green Sturgeon (*Acipenser medirostris*) 5-Year Review: Summary and Evaluation. National Marine Fisheries Service West Coast Region Long Beach, CA. 42 pp. Available at: https://www.westcoast.fisheries.noaa.gov/publications/protected_species/other/green_sturgeon/8.25.2015_southern_dps_green_sturgeon_5_year_review_2015.pdf
- NMFS (National Marine Fisheries Service). 2016. Recovery plan for Oregon Coast coho salmon evolutionarily significant unit. West Coast Region, Portland, Oregon.
- NMFS (National Marine Fisheries Service). 2017. Recovery Plan for the Southern Distinct Population Segment of Eulachon (*Thaleichthys pacificus*). National Marine Fisheries Service, West Coast Region, Protected Resources Division, Portland, OR, 97232. 132 pp. Available at: <http://www.nmfs.wcr.gov>
- NMFS (National Marine Fisheries Service). 2018. Recovery Plan for the Southern Distinct Population Segment of North American Green Sturgeon (*Acipenser medirostris*). National Marine Fisheries Service, Sacramento, CA. Available at http://www.westcoast.fisheries.noaa.gov/protected_species/green_sturgeon/green_sturgeon_pg.html
- NWFSC (Northwest Fisheries Science Center). 2015. Status review update for Pacific salmon and steelhead listed under the Endangered Species Act: Pacific Northwest.
- ODEQ (Oregon Department of Environmental Quality). 2003. Biofilters for stormwater discharge pollution removal. State of Oregon Department of Environmental Quality. Salem, Oregon. January.
- ODEQ (Oregon Department of Environmental Quality). 2004. Coos Bay geographic response plan. Revision #5. December 1, 2004. Salem, OR.
- ODFW (Oregon Department of Fish and Wildlife). 1979. Natural resources of Coos Bay estuary, estuary inventory report. Oregon Department of Fish and Wildlife, Research and Development Section. Salem, Oregon. 1979.
- ODOT (Oregon Department of Transportation). 2011. Hydraulics manual. Highway Division. Prepared by Engineering and Asset Management Unit Geo-Environmental Section.
- Otto, R.G. 1971. Effects of salinity on the survival and growth of pre-smolt coho salmon (*Oncorhynchus kisutch*). Journal of Fisheries Research Board of Canada 28:343-349.
- PFMC (Pacific Fishery Management Council). 1998. Description and identification of essential fish habitat for the Coastal Pelagic Species Fishery Management Plan. Appendix D to Amendment 8 to the Coastal Pelagic Species Fishery Management Plan. Pacific Fishery Management Council, Portland, Oregon. December.

- PFMC (Pacific Fishery Management Council). 2005. Amendment 18 (bycatch mitigation program), Amendment 19 (essential fish habitat) to the Pacific Coast Groundfish Fishery Management Plan for the California, Oregon, and Washington groundfish fishery. Pacific Fishery Management Council, Portland, Oregon. November.
- PFMC (Pacific Fishery Management Council). 2014. Appendix A to the Pacific Coast Salmon Fishery Management Plan, as modified by Amendment 18 to the Pacific Coast Salmon Plan: Identification and description of essential fish habitat, adverse impacts, and recommended conservation measures for salmon. Pacific Fishery Management Council, Portland, OR. September 2014. 196 p. + appendices.
- Peter, K.T., Z. Tian, C. Wu, P. Lin, S. White, D. Du, J.K. McIntyre, N.L. Scholz, and E.P. Kolodziej. 2018. Using high-resolution mass spectrometry to identify organic contaminants linked to urban stormwater mortality syndrome in coho salmon. *Environmental Science and Technology* 52:10317-10327.
- Rand, G.M., and S.R. Petrocelli. 1985. *Fundamentals of aquatic toxicology: Methods and applications*. Editors. Hemisphere Publishing Corporation, Washington, D.C.
- Raymondi, R.R., J.E. Cuhaciyan, P. Glick, S.M. Capalbo, L.L. Houston, S.L. Shafer, and O. Grah. 2013. Water resources: Implications of changes in temperature and precipitation. Pages 41-58 in M.M. Dalton, P.W. Mote, and A.K. Snover, editors. *Climate change in the northwest: Implications for our landscapes, waters, and communities*. Island Press, Washington, DC.
- Reeder, W.S., P.R. Ruggiero, S.L. Shafer, A.K. Snover, L.L. Houston, P. Glick, J.A. Newton, and S.M. Capalbo. 2013. Coasts: Complex changes affecting the Northwest's diverse shorelines. Pages 67-109 in M.M. Dalton, P.W. Mote, and A.K. Snover, editors. *Climate change in the northwest: Implications for our landscapes, waters, and communities*, Island Press, Washington, DC.
- Robertson, M.J., D.A. Scruton, R.S. Gregory, and K.D. Clarke. 2006. Effect of suspended sediment on freshwater fish and fish habitat. *Canadian Technical Report of Fisheries and Aquatic Sciences* 2644.
- Sandahl, J.F., D.H. Baldwin, J.J. Jenkins, and N.L. Scholz. 2007. A sensory system at the interface between urban stormwater runoff and salmon survival. *Environmental Science & Technology* 41(8):2998-3004.
- Scheuerell, M.D., and J.G. Williams. 2005. Forecasting climate-induced changes in the survival of Snake River spring/summer Chinook salmon (*Oncorhynchus tshawytscha*). *Fisheries Oceanography* 14:448-457. Shared Strategy for Puget Sound. 2007. Puget Sound salmon recovery plan. Volume 1, recovery plan. Shared Strategy for Puget Sound. Seattle.

- Scholz, Nat. Ecotoxicology Program Manager, Northwest Fisheries Science Center, Seattle, WA. February 2, 2014. Personal communication with Michelle McMullin, NMFS, presentation regarding water quality, pollutants, and salmonids.
- Servizi, J.A., and D.W. Martens. 1991. Effects of temperature, season, and fish size on acute lethality of suspended sediments to coho salmon (*Oncorhynchus kisutch*). Canadian Journal of Fisheries and Aquatic Sciences 48:493-497.
- Soller, J., J. Stephenson, K. Olivieri, J. Downing, and A.W. Olivieri. 2005. Evaluation of seasonal scale first flush pollutant loading and implications for urban runoff management. Journal of Environmental Management 76:309-318.
- Sounhein, B., M. Lewis, and M. Weeber. 2019. Western Oregon adult coho salmon, 2018 spawning survey data report. Monitoring Program Report Number OPSW-ODFW-2019-3, Oregon Department of Fish and Wildlife, Salem, Oregon.
- Spromberg, J.A., and J.P. Meador. 2006. Relating chronic toxicity responses to population-level effects: A comparison of population-level parameters for three salmon species as a function of low-level toxicity. Ecological Modeling 199(2006):240-252.
- Stenstrom, M.K., and M. Kayhanian. 2005. First flush phenomenon characterization. Prepared for California Department of Transportation CTSW-RT-05-73-02.6. August. Sacramento, California.
- Stout, H.A., P.W. Lawson, D.L. Bottom, T.D. Cooney, M.J. Ford, C.E. Jordan, R.J. Kope, L.M. Krusic, G.R. Pess, G.H. Reeves, M.D. Scheuerell, T.C. Wainwright, R.S. Waples, E. Ward, L.A. Weitkamp, J.G. Williams, and T.H. Williams. 2012. Scientific conclusions of the status review for Oregon Coast coho salmon (*Oncorhynchus kisutch*). U.S. Department of Commerce. NOAA Technical Memorandum NMFS-NWFSC-118. 242 p.
- Sunda, W.G., and W.J. Cai. 2012. Eutrophication induced CO₂-acidification of subsurface coastal waters: interactive effects of temperature, salinity, and atmospheric p CO₂. Environmental Science & Technology, 46(19):10651-10659.
- Tague, C.L., J.S. Choate, and G. Grant. 2013. Parameterizing sub-surface drainage with geology to improve modeling streamflow responses to climate in data limited environments. Hydrology and Earth System Sciences 17(1):341-354.
- Tiefenthaler, L.L., and K.C. Schiff. 2003. Effects of rainfall intensity and duration on first flush of stormwater pollutants. Pages 209-215 in S.B Weisberg and D. Elmore (eds). Southern California Coastal Water Research Project 2001-02 Biennial Report. Westminster, California.
- Tillmann, P., and D. Siemann. 2011. Climate change effects and adaptation approaches in marine and coastal ecosystems of the North Pacific landscape conservation cooperative region. National Wildlife Federation.

- USDC (U.S. Department of Commerce). 2009. Endangered and threatened wildlife and plants: Final rulemaking to designate critical habitat for the threatened southern distinct population segment of North American green sturgeon. U.S. Department of Commerce, National Marine Fisheries Service. Federal Register 74(195):52300-52351.
- Van Metre, P.C., B.J. Mahler, M. Scoggins, and P.A. Hamilton. 2006. Parking lot sealcoat: A major source of polycyclic aromatic hydrocarbons (PAHs) in urban and suburban environments. U.S. Geological Survey. January.
<http://pubs.usgs.gov/fs/2005/3147/pdf/fs2005-3147.pdf>
- Wainwright, T.C., and L.A. Weitkamp. 2013. Effects of climate change on Oregon Coast coho salmon: habitat and life-cycle interactions. Northwest Science 87(3):219-242.
- WDFW (Washington Department of Fish and Wildlife) and ODFW (Oregon Department of Fish and Wildlife). 2001. Washington and Oregon eulachon management plan. Washington Department of Fish and Wildlife and Oregon Department of Fish and Wildlife. November. Available at: http://wdfw.wa.gov/fish/creel/smelt/wa-ore_eulachonmgmt.pdf
- WDFW (Washington Department of Fish and Wildlife) and ODFW (Oregon Department of Fish and Wildlife). 2012. Information relevant to the status review of green sturgeon. Direct submission in response to Federal Register on October 24, 2012 (77 FR 64959). November. Available at: http://wdfw.wa.gov/fish/creel/smelt/wa-ore_eulachonmgmt.pdf
- WSDOT (Washington State Department of Transportation). 2008. Aviation stormwater design manual: Managing wildlife hazards near airports. Environmental and Engineering Service Center. October. 437 p.
- Winder, M., and D.E. Schindler. 2004. Climate change uncouples trophic interactions in an aquatic ecosystem. Ecology 85:2100–2106.
- Zabel, R.W., M.D. Scheuerell, M.M. McClure, and J.G. Williams. 2006. The interplay between climate variability and density dependence in the population viability of Chinook salmon. Conservation Biology 20(1):190-200.

Permittee-Responsible Mitigation Plan

Environmental Assessment

Runway Safety Area Improvements (Runway 4/22)



**Southwest Oregon
Regional Airport**

Report Prepared By

**Mead
& Hunt**

www.meadhunt.com

August 20, 2020

Mead & Hunt Project No. 1417700-171679.01

1. Project Information

Project Name: Southwest Oregon Regional Airport (OTH) Runway Safety Area Bulkhead

NWP Permit No.:

Project Location: 43° 25' 18.4794"N, -124° 14' 18.6432"W (43.421800°, -124.238512°)

Mitigation Site Location(s) (if different): 43°25'18.02"N, -124°14'17.24"W (43.421672°, -124.238122°) (1000ft SE of project site)

Watershed(s): Coos Bay, HUC 171003040405

County or Counties: Coos County

1.1 Plan Overview

This permittee-responsible mitigation plan addresses the permanent adverse modification of critical habitat for Coho salmon and Southern green sturgeon in the Coos River as a result of proposed construction of a triangular bulkhead adjacent to the Southwest Oregon Regional Airport (OTH) in North Bend, Oregon. The Federal Aviation Administration (FAA) requires¹ that the Runway Safety Area (RSA) have a 500-foot width and extend 1,000 feet beyond the ends of the runway. Currently, the northeast portion of Runway 4/22 is approximately 60 feet short of compliance.

Work will take place at the northeastern corner of the Airport property adjacent to and within Coos Bay. The project Action Area includes all areas of OTH, and the Coos Bay estuary directly or indirectly affected by the proposed project (**Figure 1, Runway Safety Area Fill and Construction Buffer**). The Action Area includes an in-water construction buffer of 250 feet for proposed fill activities within the 89-foot by 67-foot triangular fill area for the RSA, including a 10-foot road buffer for emergency vehicle access, and 8 feet of riprap toe armoring. An additional 60-foot Action Area on land is provided for vehicle support and construction staging. Construction crews and equipment will utilize haul routes to the project site via existing airport roadways and paved areas.

2. Avoidance and Minimization

2.1 Avoidance

An alternatives analysis to meet FAA RSA compliance was conducted during the Master Plan update (2013).² These alternatives were further analyzed in the OTH RSA Environmental Assessment, which discusses the impacts to natural resources of each alternative to meet RSA compliance.³ A triangular bulkhead at the northeast end of Runway 4/22 was identified as the preferred alternative because it had the smallest footprint and the least impact to critical habitat of Endangered Species Act (ESA) listed species in Coos Bay. Construction haul routes and staging areas were designed to use existing impervious surfaces when possible and avoid adjacent wetlands.

¹ FAA Advisory Circular (AC) 150/5300-13A, *Airport Design*, provides required airport safety area guidance and defines the RSA as a surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overrun, or excursion from the runway.

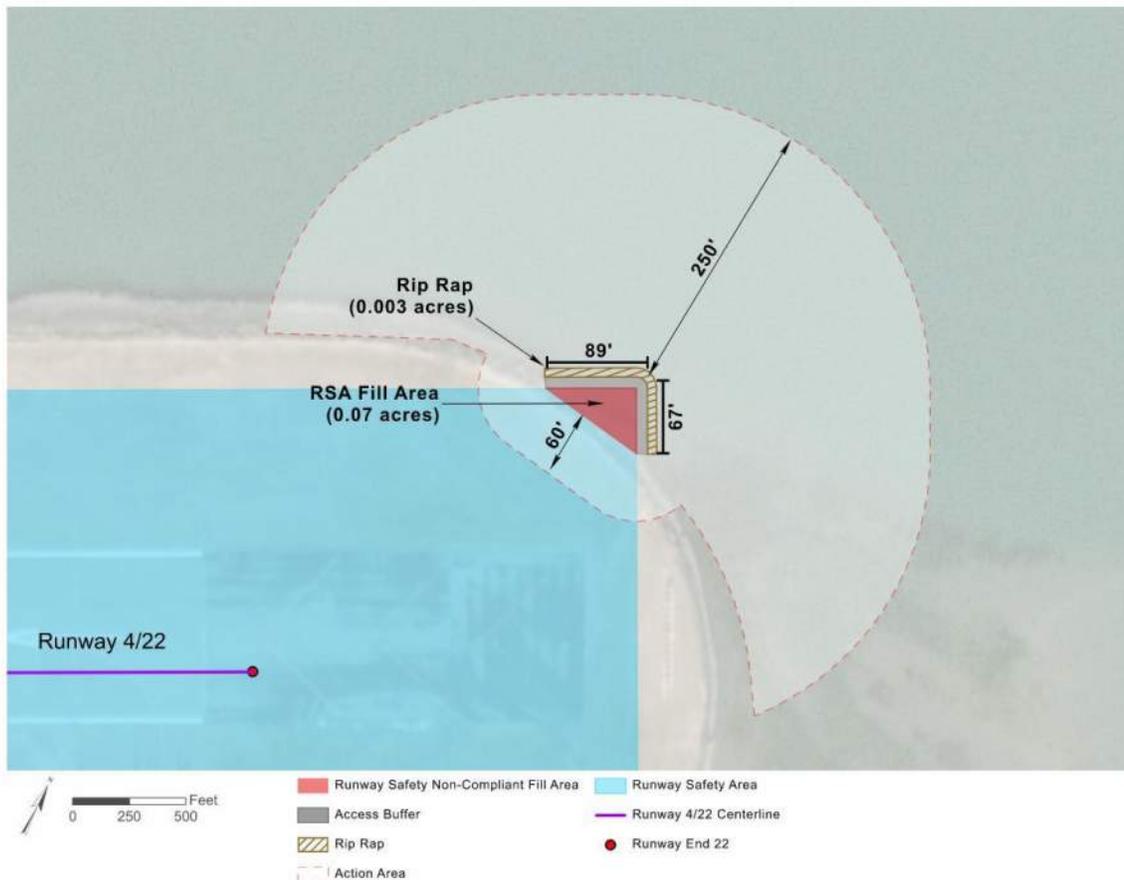
² Southwest Oregon Regional Airport Master Plan Update, 2013. <https://cooscountyairportdistrict.com/coos-county-airport-district-master-plan/>

³ Mead & Hunt, Environmental Assessment for Southwest Regional Airport Runway Safety Area Improvements (Runway 4/22), May 2020, Chapter 2.4: Build Alternatives.

2.2 Minimization

Appropriate and practical measures have been identified to minimize impacts to the aquatic ecosystem that cannot reasonably be avoided. Work will be performed during the Oregon Department of Environmental Quality (OR DEQ) in-water work window of October 1 to February 15 and will be timed with the outflow of the tides to avoid sedimentation impacts to adjacent eelgrass beds.

Figure 1: Runway Safety Area Fill and Construction Buffer



A 3,150 square-foot pre-cast concrete block bulkhead will be constructed to form a 0.07-acre (89-foot by 67-foot) triangular surface area at the northeastern corner of Runway 4/22. The bulkhead will be created by using a Mechanically Stabilized Earth (MSE) retaining wall constructed with pre-cast concrete blocks, which was determined to have the smallest construction footprint and have the least environmental impact on Coos Bay and Pony Slough. The foundation of the bulkhead will be stabilized with sand and 3 inches of rock topped with native slough soils.

Existing riprap cobbles within the construction area will be salvaged and reused for the final structure as armoring stone along the toe of the bulkhead. The armoring would extend slough-ward by approximately 8 feet to dissipate wave energy erosion, decrease scouring and undercutting of the bulkhead structure, and increase structural stability of the bulkhead.

The addition of the riprap toe represents an approximate 0.03 acre impact to Coos Bay. The total impact from the bulkhead and riprap toe is 0.1 acres.

To prepare for construction, a temporary single-face sheet pile cofferdam will be installed 12 feet from the exposed slough-ward bulkhead wall for dewatering and excavation of the foundation. Dewatering of the construction site will be conducted through outflow sediment filters on the west side of the coffer dam to further reduce sedimentation within Pony Slough. Installation and removal of the coffer dam would result in the highest level of turbidity during the course of the project. Work associated with both will be timed with the outflow of tides to reduce the potential for sedimentation on adjacent eelgrass beds. Due to the relative size of the Coos River and proposed timing of in-water work, it is expected that any increase in turbidity would not result in adverse effects.

A 60-foot Action Area on land will be used for vehicle support and construction staging. Construction crews and equipment will access the project site via existing Airport access routes, embankments within the construction area, and floating barges for the installation of the temporary coffer dam. The contractor staging and laydown area will be on land immediately adjacent to the identified construction area.

3. Compensatory Mitigation

3.1 Goals and Objectives

Compensatory mitigation (CM) involves activities conducted by a permittee or third party to create, restore, enhance, or preserve the functions and values of the waters of the state to compensate for the removal/fill-related adverse impacts of project development to waters of the state.

3.2 Ecological Goals

The principal goal of this mitigation plan is to replace the function for the waters of the US that will be lost for the RSA bulkhead construction. The bulkhead site functions as critical habitat for Coho salmon and Southern green sturgeon in the Coos River estuary (Table 1). According to the 2019 Biological Assessment, the impacts on the environmental baseline conditions (habitat Primary Constituent Elements) within the construction area include: 1) the 3,150- square foot permanent adverse modification of critical habitat for ESA-listed fish, and 2) short-term, localized increases in background turbidity and minor alteration of substrates.⁴

Table 1. ESA-Listed Species with The Potential to Occur within the Project Area

| Species | Population (ESU/DPS) | Federal Status | Closest Designated Critical Habitat | Potential Site Use |
|--|----------------------|--------------------------|-------------------------------------|-----------------------|
| Coho salmon <i>Oncorhynchus kisutch</i> | Oregon Coast ESU | Threatened (76 FR 35755) | Coos Bay | Rearing and migration |

⁴ Mead & Hunt. Biological Assessment for the Southwest Oregon Regional Airport Runway Safety Area Improvements, October 2019. Chapter 4: Environmental Baseline, p.8.

| | | | | |
|---|--------------|-----------------------------|--|--------------------------|
| Green Sturgeon <i>Acipenser medirostris</i> | Southern DPS | Threatened (71 FR 17757) | Coos Bay | Foraging |
| Eulachon <i>Thalichthys pacificus</i> | Southern DPS | Threatened (75 FR 13012) | Approximately 17 miles north of project area at Umpqua River | Rearing and migration |

Sources: NMFS (National Marine Fisheries). 2018. Northwest Regional Office, ESA Salmon Listings.

<http://www.westcoast.fisheries.noaa.gov/index.html>.

StreamNet. 2018. Data Query and Critical Habitat Mapper. <http://www.streamnet.org/>.

USFWS (U.S. Fish and Wildlife Service). 2018. Critical Habitat Mapper. <https://ecos.fws.gov/ecp/report/table/critical-habitat.html>

3.3 Ecological Objectives

There are two primary objectives of this mitigation plan:

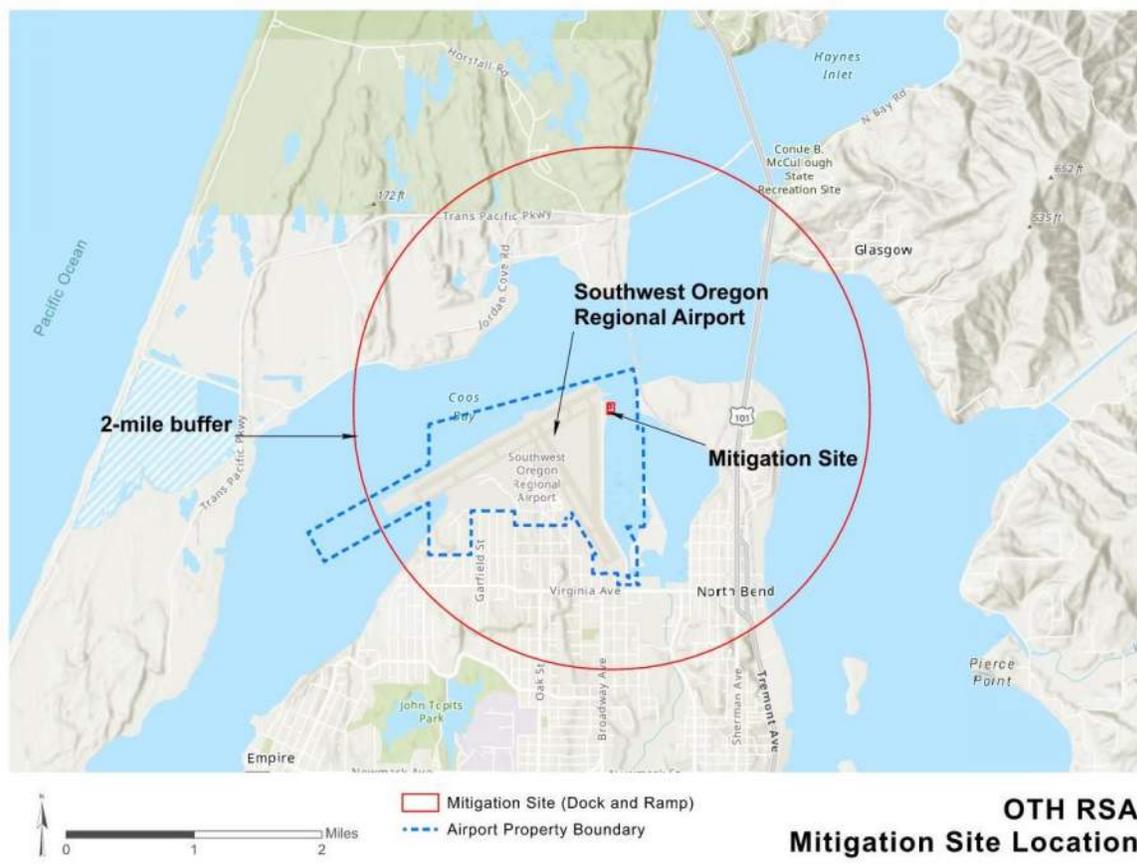
- 1) to restore functional losses of aquatic critical habitat for ESA-listed fish, and
- 2) to enhance the project area shoreline to improve habitat for benthic organisms.

The restoration of 8,000 square feet of adjacent critical habitat and Essential Fish Habitat (EFH) eelgrass beds represents a 2:1 ratio over the area of critical habitat permanently adversely modified due to the bulkhead. Restoration will be accomplished by removing creosote piles and remnant dock structures in Pony Slough. The removal of these items will return the substrate to natural conditions and remove impediments to fish migration and foraging habitat within Pony Slough. Improvements in the slough bottom can induce the spread of eelgrass into the area, improving cover from predation and increasing the availability of feeder species. The surrounding Pony Slough estuary includes eelgrass beds that provide complex habitat and are an important foraging area for multiple species, including ESA-listed fish.

In the last phase of construction of the RSA bulkhead, the toe of the eco-block wall will be armored with rip-rap to structurally stabilize the wall, and provide habitat for marine organisms. This new rip-rap toe, as well as adjacent existing rip-rap within 500 feet, will be seeded with whole oyster shells. This enhancement hopes to provide a fully functioning, three-dimensional bed system that provides associated ecosystem services and biological functions, such as marine biodiversity, shoreline protection, sediment trapping, water quality improvement, and recreational fishing opportunities. If successfully established, the oyster beds will also protect and enhance the adjacent sea grass beds and mitigate for substrate alteration and rip-rap removal during bulkhead construction. ⁵

⁵ ["NOAA Habitat Conservation | Restoration Center | Restoration Techniques and Monitoring | Oyster Restoration". Habitat.noaa.gov.](#)

Figure 2: OTH RSA Mitigation Site Location



To facilitate accurate comparisons of pre-project and post-project eelgrass density and areal coverage, subsequent annual monitoring surveys will be conducted at a similar time during the growing season (e.g. June to early July) using the methodology utilized in baseline surveys conducted in June 2019. Detailed survey methodology is included in **Section 11. Performance Standards/Monitoring Requirements**.

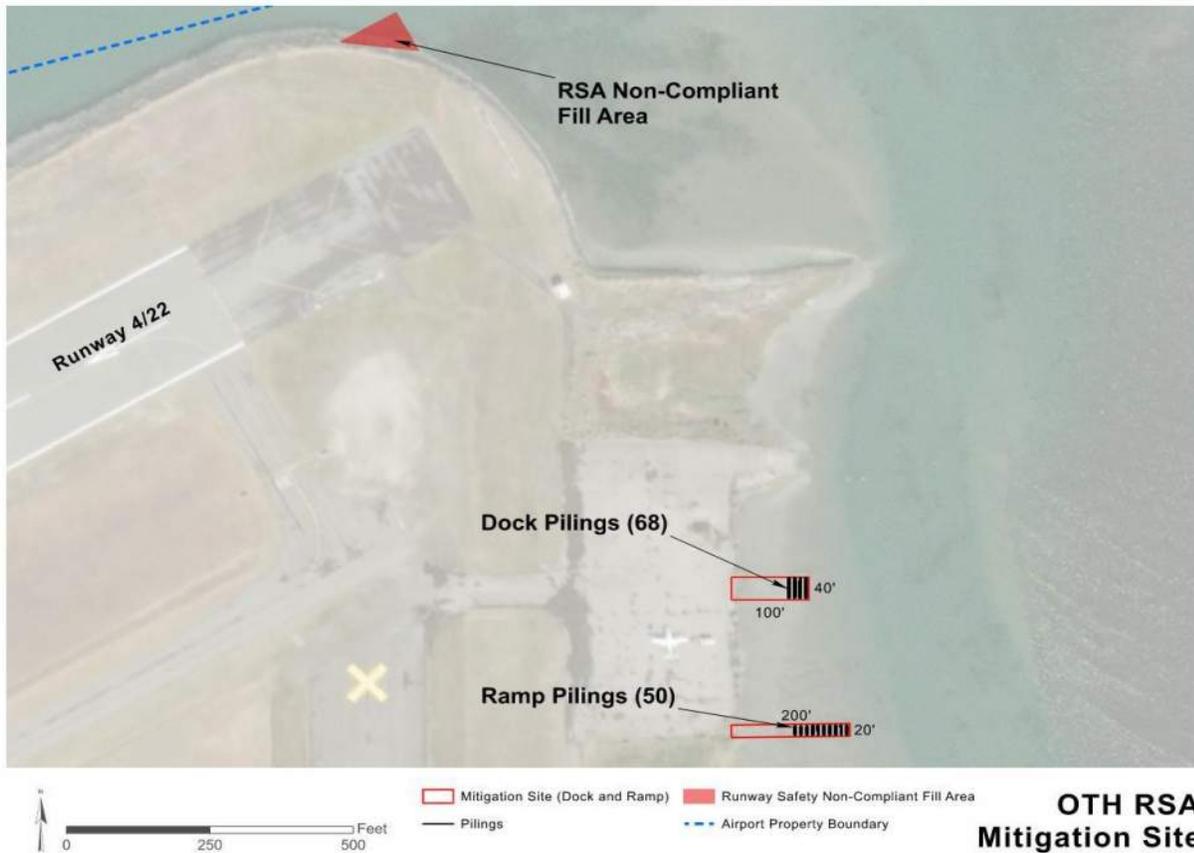
4. Site Selection

Selection of the site was driven primarily by the goal of restoring ecosystem function and providing high-quality habitat for fish. Proximity to project area was also given consideration. The selected sites were determined to be ecologically suitable for providing the desired compensatory mitigation and are adjacent to existing aquatic resources.

The proposed mitigation sites are located 1,000 feet southeast of the RSA fill bulkhead, east of Runway 4/22 (**Figure 2**). This area is the former location of Ponypoint Park, a City of North Bend facility that accommodated five recreational vehicle camp sites and included a walking trail, a boat ramp, and parking lot. The 0.18-acre mitigation site includes the creosote piles of a boat ramp and dock structure within Pony Slough to the east of the paved area.

A visual survey of the site identified the structural remnants of an approximate 4,000 square-foot boat dock consisting of at least 68 piles, and an approximate 4,000 square-foot boat ramp with 50 piles and wood planks (**Figure 3**). Exposed piles were found to be creosote coated with metal fasteners.

Figure 3: OTH RSA Dock and Ramp Pilings Mitigation Sites



Eelgrass beds are located 100 feet from the RSA Fill Action Area and have been designated as EFH, while dispersed eelgrass exists within 30 feet of the construction site. No direct impact to eelgrass is anticipated due to the construction of a coffer dam; however, any in-water work has the potential to increase sedimentation and turbidity in the surrounding area. Monitoring any potential long-term impacts to eelgrass bed growth will be based on comparing existing and future eelgrass density with an adjacent designated control plot.

Given the existing baseline conditions within the project area and net of in-water/overwater structures, it is reasonably certain that the proposed project will not result in any adverse change to the instream or downstream functions (i.e., hydrologic, geomorphic, biological, or chemical/nutrient) of the Coos River. Potential direct effects of the proposed project on ESA-listed species and their habitats (i.e., hydroacoustic impacts, temporary degraded water quality, and minor alteration of substrates) will be consistent with those addressed under the SLOPES V In-water/Overwater Structures Programmatic Agreement.

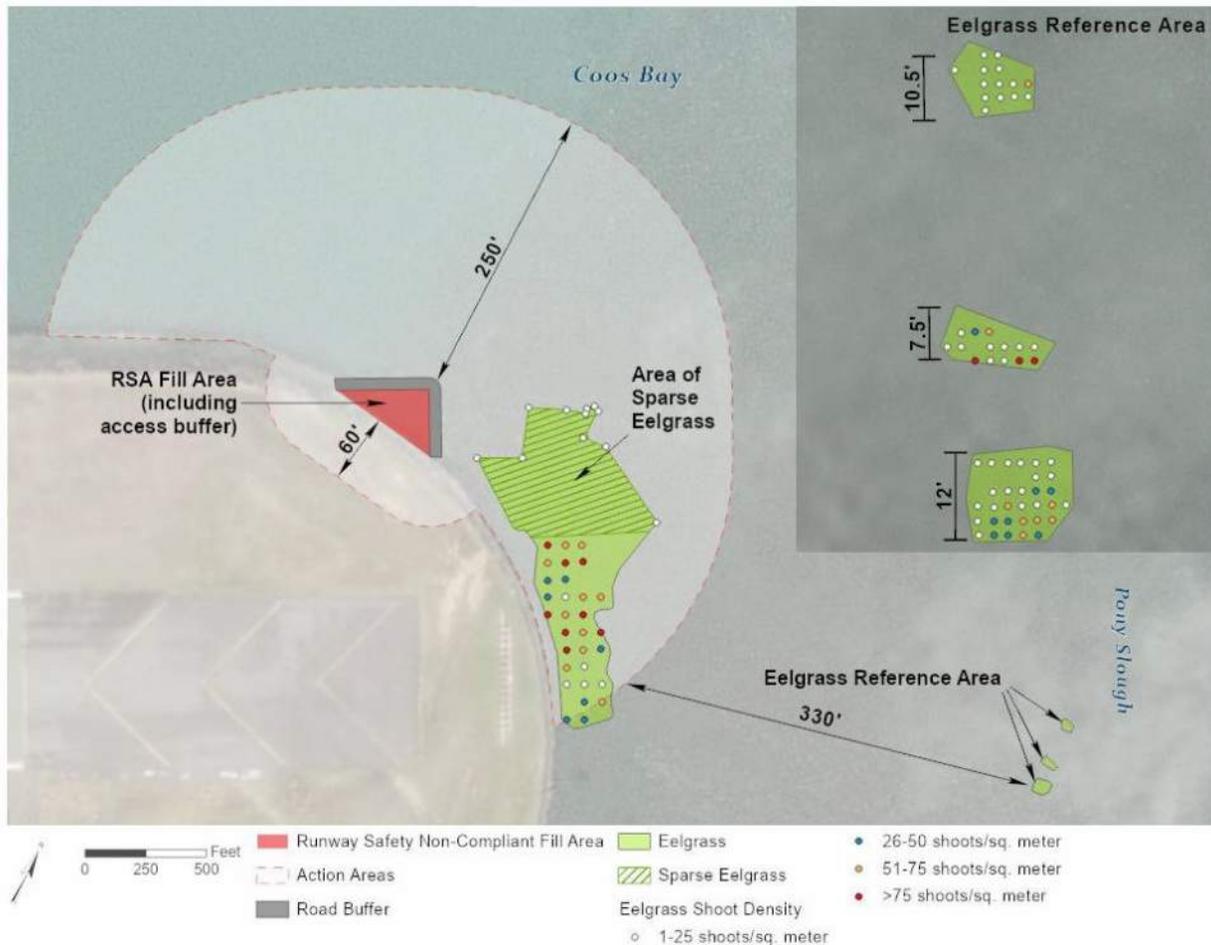


Figure 4: Eelgrass Density Adjacent to RSA Fill Area

5. Easements or Encumbrances

No easements or encumbrances are known to exist. The project site is within tidal water and managed by the Oregon Department of State Lands.

6. Baseline Information and Functional Assessment

OTH is a triangular-shaped property that is surrounded on multiple sides by the Coos Bay Estuary. The northwest side of the property is surrounded predominantly by the open water of the Coos Bay estuary. The east boundary of OTH is defined by Pony Slough and its estuarine intertidal wetland system.

The Coos Bay estuary covers approximately 54 square miles of open channels and periodically inundated tidal flats. It ranges from 0.5 mile to 1.5 miles wide, is 15 miles long, and has approximately 30 tributaries. The Coos River is the major tributary flowing into Coos Bay and is an important shipping channel. Pony Slough is identified as an estuarine intertidal wetland system (E2USN) by the USFWS National Wetland Inventory (NWI). Freshwater is supplied into the slough by Pony Creek, a perennial stream.

Three federally listed anadromous fish species spend a portion of their lifecycle within the estuarine environment of Coos Bay. Oregon Coast Coho salmon (*Oncorhynchus kisutch*), southern distinct population segment (DPS) Green sturgeon (*Acipenser medirostris*), and southern DPS Pacific eulachon (*Thaleichthys pacificus*), were each federally listed as threatened under the Endangered Species Act (ESA). Use of the Coos Bay system by Pacific eulachon and Green sturgeon is sporadic; however, migrating habitat exists for Coho salmon in the RSA Fill Action Area and Coos Bay is considered Critical Habitat for Coho salmon.

Pony Slough has been designated EFH and a Habitat Area of Particular Concern (HAPC) for Coho salmon. EFH includes “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” A HAPC is a subset of EFH that is rare, particularly susceptible to human-induced degradation, especially ecologically important, and/or located in an environmentally stressed area. HAPC designations are used to provide additional focus for conservation efforts.

Estuarine areas are crucial for juvenile salmonids given their multiple functions as areas for rearing/feeding, freshwater-saltwater acclimation, and migration. Nearshore areas also provide important habitat for rearing/feeding and migrating salmonids.⁶ Eelgrass supports aquatic organisms, including salmon, by providing food, refuge from predation, and nursery areas. The integrity of nearshore ecosystems where juvenile salmon reside and the capacity of these habitats to provide prey⁷ can thus influence overall salmon returns.⁷

Oyster reefs create important habitat for hundreds of other marine species and filter and clean the surrounding water. Species like mussels, barnacles, and sea anemones settle on them, creating abundant food sources for commercially valuable fish species. Oyster reefs provide habitat to forage fish, invertebrates, and other shellfish. Approximately 1 mile away from the project site at the western portion of the airport, significant cockle, shrimp, and bivalve habitat exists in Coos Bay.⁸

Seagrass beds known as eelgrass (*Zostera spp.*) are a major habitat component of Coos Bay and Pony Slough. Vegetated shallows that support eelgrass are considered special aquatic sites under the 404(b)(1) guidelines of the CWA (40 CFR § 230.43). Two eelgrass species are known to be present in this ecoregion, the native *Z. marina* and the non-native *Z. japonica*. *Z. japonica* was first reported in Willapa Bay, Washington, and is thought to have been introduced in the early twentieth century along with oyster stock imported from Japan (Shafer, Kaldy, and Gaeckle 2014).

Both eelgrass species contribute to ecosystem functions at multiple levels: as primary and secondary producers, as habitat structuring elements, as a substrate for epiphytes and epifauna, and as sediment stabilizers and nutrient cycling facilitators. Eelgrass provides important foraging areas and shelter to young fish and invertebrates, food for migratory

⁶ Final Assessment of NOAA Fisheries’ Critical Habitat Analytical Review Team (CHART) for the Oregon Coast Coho Salmon Evolutionarily Significant Unit. Accessed February 2020

⁷ Eelgrass as Valuable Nearshore Foraging Habitat for Juvenile Pacific Salmon in the Early Marine Period. Accessed February 2020. (<https://afspubs.onlinelibrary.wiley.com/doi/pdf/10.1002/mcf2.10018>)

⁸ <https://www.dfw.state.or.us/mrp/shellfish/docs/SEACOR%20environmental%20all.pdf>

waterfowl, and spawning surfaces for invertebrates and fish such as the Pacific herring. In addition, eelgrass has the capacity to sequester carbon in the underlying sediments and may help ameliorate the effects of ocean acidification.

Creosote has been used as a wood preservative for more than a century to treat telephone poles, railroad ties, piers, docks and floats. Thousands of derelict creosote pilings remain in Oregon coastal waters. Many eventually break up and distribute tons of debris onto beaches throughout the Sound. Creosote comprises more than 300 chemicals that, together, are very effective at achieving their intended purpose of preventing decay or insect infestation.

But chemicals in treated wood—such as those on beaches or old dock pilings—can be harmful and even toxic to marine species. Polycyclic aromatic hydrocarbons (PAHs) are the chemicals of most concern. When exposed to ultraviolet light or sunshine, the chemicals in creosote become more toxic and are more likely to leach from the wood. A piling that contains creosote can leach throughout its lifetime. Studies show that herring eggs exposed to creosote have a high mortality rate. PAHs are known to increase disease and alter growth and reproductive function in English sole. These chemicals affect juvenile salmonids that migrate through contaminated estuaries by reducing their growth and altering immune function.⁹

Four functional groups provide the basis for a function-based assessment for streams:

1. **Hydrologic functions:** include movement of water through the watershed and the variable transfer and storage of water along the stream channel, its floodplain, and associated alluvial aquifer.
2. **Geomorphic functions:** encompass hydraulic and sediment transport processes that generate variable forces within the channel and the variable input, transfer and storage of sediment within the channel and adjacent environs that are generally responsible for channel form at multiple scales.
3. **Biological functions:** include processes that result in maintenance and change in biodiversity, trophic structure, and habitat within the stream channel.
4. **Water quality functions:** encompass processes that govern the cycling, transfer, and regulation of energy, nutrients, chemicals and temperature in surface and groundwater, and between the stream channel and associated riparian system.

For biological and water quality functional groups, the mitigation will provide some improvement in function for eelgrass habitat and benthic environments both physically and chemically, and no significant difference in the overall stream function was noted.

Table 2.1 Stream Function Categorization, Definition, and Ecosystem Services Provided

⁹ Washington Department of Natural Resources Derelict Creosote Piling Removal Best Management Practices For Pile Removal & Disposal https://www.dnr.wa.gov/publications/aqr_rest_creosote_bmps_pilings.pdf#w8th9

| FUNCTIONAL GROUP | SPECIFIC FUNCTIONS | DEFINITION AND SERVICES/VALUES PROVIDED | PRE- FUNCTION AND VALUE | POST FUNCTION AND VALUE |
|----------------------|-----------------------------|---|-------------------------|-------------------------|
| Hydrologic functions | Surface water storage (SWS) | Temporary storage of surface water in relatively static state, generally during high flow, as in floodplain inundation, backwater channels, wetland depressions. Providing regulating discharge, replenishes soil moisture, provides pathways for fish and invertebrate movement. | Moderate/ Moderate | Moderate/ Moderate |
| | Sub/surface transfer (SST) | Transfer of water between surface and subsurface environments, often through hyporheic zone. Provides aquifer recharge, base-flow, exchange of nutrients/chemicals through hyporheic, moderates flow, and maintains soil moisture. | Moderate/ Moderate | Moderate/ Moderate |
| | Flow variation (FV) | Daily, seasonal and inter-annual variation in flow. Provides variability in stream energy | Higher/ Moderate | Higher/ Moderate |

| | | | | |
|-----------------------------|---------------------------------|--|-----------------------|-----------------------|
| | | driving channel dynamics, provides environmental cues for life history transitions, redistributes sediment, provides habitat variability (temporal), provides sorting of sediment and differential deposition. | | |
| Geomorphic functions | Sediment continuity (SC) | The balance between transport and deposition of sediment such that there is no net erosion or deposition (aggradation or degradation) within the channel. Maintains channel character and associated habitat diversity, provides sediment source and storage for | Moderate/ Moderate | Moderate/ Moderate |

| | | | | |
|-----------------------------|-----------------------------------|---|---------------------|---------------------|
| | | riparian and aquatic habitat succession, maintains channel equilibrium. | | |
| | Substrate mobility (SM) | Regular movement of channel bed substrate. Provides sorting of sediments, mobilizes/flushes fine sediment, creates and maintains hydraulic diversity, creates and maintains habitat. | Moderate/ Higher | Moderate/ Higher |
| Biological functions | Maintain Biodiversity (MB) | Maintain the variety of species, life forms of a species, community compositions, and genetics. Biodiversity provides species and community resilience in the face of disturbance and disease, full spectrum trophic resources, balance of resource use (through interspecies competition). | Lower/ Moderate | Lower/ Moderate |

| | | | | |
|--|--|---|----------------------------|----------------------------|
| | <p>Create and maintain habitat (aquatic/riparian) (CMH)</p> | <p>Create and maintain the suite of physical, chemical, thermal and nutritional resources necessary to sustain organisms. Habitat sustains native organisms. Habitat includes in-channel habitat, as defined largely by depth, velocity, and substrate, and riparian habitat, as defined largely by vegetative structure.</p> | <p>Lower/ Moderate</p> | <p>Lower/ Moderate</p> |
| | <p>Sustain trophic structure (STS)</p> | <p>Production of food resources necessary to sustain all trophic levels including primary producers, consumers, prey species and predators. Trophic structure provides basic nutritional resources for</p> | <p>Lower/ Moderate</p> | <p>Lower/ Moderate</p> |

| | | | | |
|--------------------------------|---------------------------------|---|-----------------------|-----------------------|
| | | aquatic resources, regulates the diversity of species and communities. | | |
| Water Quality functions | Nutrient cycling (NC) | Transfer and storage of nutrients from environment to organisms and back to environment. Provides basic resources for primary production, regulates excess nutrients, provides sink and source for nutrients. | Lower/ Moderate | Lower/ Moderate |
| | Chemical regulation (CR) | Moderation of chemicals in the water. Limits the concentration of beneficial and detrimental chemicals in the water. | Moderate/ Moderate | Moderate/ Moderate |
| | Thermal regulation (TR) | Moderation of water temperature. Limits the transfer and storage of thermal energy to and from streamflow and hyporheic zone. | Lower/ Moderate | Lower/ Moderate |

7. Mitigation Work Plan

All work will take place during the OR DEQ designated in-water work window (IWWW) of October 1 – February 15, the period during which ESA-listed species are least likely to be present within the vicinity of the project area. The proposed project will require approximately four to eight weeks of in-water/overwater work. Construction crews and equipment will access the project site from the shoreline and from a floating barge. The existing dock and pier (approximately 8,000 square feet total) and 118 pilings will be removed with a crane and/or excavator operating from a floating barge. Removal of any sections of sunken dock and/or pier will occur at low tide so workers can locate and remove the debris without causing turbidity. The 118 existing pilings will be dislodged with a vibratory hammer and slowly lifted from the sediment and placed into a contained area for appropriate upland disposal. No dredging or excavation will be required.

Piling and other structure removal includes untreated and chemically treated wood pilings, piers, boat docks and potentially other structures comprised of plastic, concrete, and other materials. Piling and other structure removal from waterways will improve water quality by eliminating chronic sources of toxic contamination and associated impacts to riparian dependent species. Pilings and other structures occur in estuaries, lakes, and rivers and are typically used in association with boat docks and other facilities. Equipment such as boats, barges, excavators, dump trucks, front-end loaders, and similar equipment may be used to implement projects.

When removing an intact pile:

- Install a floating surface boom to capture floating surface debris.
- To the extent possible, keep all equipment (e.g., bucket, steel cable, vibratory hammer) out of the water, grip piles above the waterline, and complete all work during low water and low current conditions.
- Dislodge the piling with a vibratory hammer, whenever feasible. Never intentionally break a pile by twisting or bending.
- Slowly lift piles from the sediment and through the water column.
- Place chemically treated piles in a containment basin on a barge deck, pier, or shoreline without attempting to clean or remove any adhering sediment. A containment basin for the removed piles and any adhering sediment may be constructed of durable plastic sheeting with sidewalls supported by hay bales or another support structure to contain all sediment.
- Fill the holes left by each piling with clean, native sediments located from the project area.
- Dispose of all removed piles, floating surface debris, any sediment spilled on work surfaces, and all containment supplies at a permitted upland disposal site.

When removing a broken pile:

- If a pile breaks above the surface of uncontaminated sediment, or less than 2 feet below the surface, every attempt short of excavation will be made to remove it entirely. If the pile cannot be removed without excavation, excavate sediments and saw the stump off at least 3 feet below the surface of the sediment.
- If a pile breaks above contaminated sediment, saw the stump off at the sediment line: if a pile breaks within contaminated sediment, make no further effort to remove it and cover the hole with a cap of clean substrate appropriate for the site.
- If dredging is likely in the area of piling removal, use a global positioning device (GPS) to note the location of all broken piles for future use in site debris characterization.¹⁰

Measures to Minimize Impacts: The following conservation measures have been incorporated into the proposed project design and construction methods to minimize and avoid potential adverse effects to ESA- listed fish species, their designated Critical Habitat elements, and Essential Fish Habitat:

- All work conducted below the Highest Median Tide (HMT) will occur during the OR DEQ-preferred IWWW for the Coos River estuary (October 1 – February 15), a period when ESA-listed species are less likely to be present within the vicinity of the project area.
- All heavy equipment (i.e., crane) will access the project site via existing piers and/or floating barges.
- All pilings will be removed with a vibratory hammer. During piling removal, the following criteria will be implemented to minimize creosote release, sediment disturbance and sediment resuspension:
 - Install a floating surface boom to capture floating surface debris.
 - Consider the best tidal condition for piling removal, try to remove in-the-dry.
 - Keep all equipment (e.g., bucket, cable, vibratory hammer) out of the water, grip piles above the waterline, and complete work during low water and low current conditions.
 - Dislodge piling with a vibratory hammer, when possible; never intentionally break a pile.
 - “Wake” the piling by vibrating to break the friction bond between the piling and sediment.
 - Slowly lift the pile from the sediment and through the water column.
 - Place the pile in a containment basin on a barge deck, pier, or shoreline without attempting to clean or remove any adhering sediment.
 - Fill the holes left by each piling with clean, native sediments immediately upon removal.
 - Dispose of all removed piles, floating surface debris, any sediment spilled on work surfaces, and all containment supplies at a permitted upland disposal site.
- When a pile breaks or is intractable during removal, removal will continue as follows:
 - Every attempt short of excavation will be made to remove each piling, if a pile in

¹⁰ Removal of Creosote-Treated Pilings and Structures from San Francisco Bay-Environmental Assessment
https://www.sfei.org/sites/default/files/biblio_files/ReportNo605_Creosote_Dec2010_finalJan13.pdf

uncontaminated sediment is intractable, breaks above the surface, or breaks below the surface, cut the pile or stump off at least 3 feet below the surface of the sediment.

- The following conditions will apply when removing preservative-treated wood:
 - To the extent possible, ensure no wood debris falls into the water. If wood debris does fall into the water, remove it immediately.
 - Wood debris will be placed in an appropriate dry storage site until removed from the site.
 - Wood construction debris will not be left in the water or stacked on the bank or below HMT.
 - Wood debris removed during the project will be evaluated to ensure proper disposal.
- The contractor will initiate daily “soft-start” procedures to provide a warning and/or give species near piling removal and installation activities a chance to leave the area prior to a vibratory hammer or impact driver operating at full capacity; thereby, exposing fewer species to loud underwater and airborne sounds.
 - A soft start procedure will be used at the beginning of in-water piling removal and installation, or any time piling removal/installation has ceased for more than 30 minutes.
 - For vibratory hammer operation, the contractor will initiate noise from vibratory hammers for 15 seconds at reduced energy followed by a 30-second waiting period. The procedure shall be repeated two additional times.
 - For impact pile driving (if necessary), the contractor will provide an initial set of strikes from the impact hammer at reduced energy, followed by a 30-second waiting period, then two subsequent sets. (The reduced energy of an individual hammer cannot be quantified given the variations between individual drivers. In addition, the number of strikes will vary at reduced energy given that raising the hammer at less than full power and then releasing it results in the hammer bouncing as it strikes the pile, resulting in multiple strikes).
- A Pollution Control Plan (PCP) will be prepared by the contractor and carried out commensurate with the scope of the project that includes the following:
 - Best management practices to confine, remove, and dispose of construction waste.
 - Procedures to contain and control a spill of any hazardous material.
- All conditions of Oregon Department of Environmental Quality’s (ODEQ’s) 401 Water Quality Certification will be followed.
- All equipment will be inspected daily for fluid leaks. Any leaks detected will be repaired before operation is resumed. Stationary power equipment (i.e., cranes) operated within 150 feet of the river will be diapered to prevent leaks.
- All new pilings will be fitted with devices to prevent perching by piscivorous birds.
- All floatation material will be permanently encapsulated to prevent dispersal into the water.
- Replacement overwater piers and floats will be grated to allow for 50 percent light penetration.
- The proposed project will result in a net reduction of approximately 7 square feet of existing overwater area and will result in a net reduction of in-water pilings.

Whole oyster seeding will occur post removal of the coffer dam and rip-rap installation. The site must also have a minimum water depth of one foot, even during extreme low-tide conditions. Oysters will die if they become smothered in silt or freeze out of the water, but they will not die if they freeze in the water.

8. Determination of Credits

The construction of the RSA bulkhead is unavoidable and presents the lowest possible impact to EFH and ESA-listed critical habitat. Mitigation of the creosote contamination in Pony Slough proposes over a 2:1 ratio. The project has a high likelihood of success and provides a much higher functioning estuarine habitat in Pony Slough than the impact site. Since the likelihood of success is greater and the impacts to potentially valuable migration corridors are reduced during construction, aquatic resource restoration is the best option for permittee-responsible mitigation.

9. Monitoring Plan

Based on the potential for in-water impacts to EFH adjacent to Runway 4/22 during construction, additional BMPs will be put in place to monitor water quality. The construction schedule will be timed to adhere to OR DEQ in-water work windows for the Coos River (October 1 – February 15) and tidal outflows. Sediment outflow filters will be utilized during dewatering to minimize turbidity in Coos Bay.

A 2-year post-construction monitoring plan for eelgrass presence/absence (within 100 feet in deeper habitat) and density (>100 feet in shallow habitat) will be compared with an adjacent control site to monitor potential impacts of the project on EFH. See the attached Biological Assessment for more details on monitoring protocol for eelgrass.

Additionally, a year one visual monitoring report will be sent to the USACE to ensure that the piles have been removed and that the clam bed reseeded has occurred. This report will be sent to:

Tyler Krug

Regulatory Project Manager | USACE Portland District | North Bend Field Office

2201 Broadway Suite C | North Bend, Oregon 97459

Office: 541.756.2097 | Mobile: 541.520.6278 | E-mail: Tyler.J.Krug@usace.army.mil

10. Site Protection Instrument

The project site is within tidal waters owned by the Coos County Airport District, identified on the Airport Layout Plan as non-development. As the airport is a public entity no formal long-term

protection instrument of the mitigation site is not required by ODSL, according to ORS 141-085-0695¹¹.

OTH is proposing a pen and ink change on the ALP to show the change in status for this land, to question as “Environmental Reserve” or “Conservation Non-Development Area”. It is understood that:

- o The land will not change ownership
- o No other entities will receive rights or interest over the land
- o The change in designation will not negatively impact previous FAA investment in facilities at the Airport.
- o No physical changes to the land will occur, only an understanding, depicted on the ALP that development will not occur on this land.
- o Not identified as a development area on the ALP
- o Unlikely to be developed for aeronautical use given the severe environmental sensitivities and constraints associated with the property (designated Essential Fish Habitat for salmonids and eelgrass, critical habitat for Coho salmon, eulachon, green sturgeon, Estuary Management Plan, complex mitigation and permitting requirements).

11. Performance Standards / Monitoring Requirements

Due to the avoidance and minimization measures described previously, this project is not likely to adversely affect EFH (eelgrass). However, a 2-year monitoring plan will be implemented in order to assess the potential for indirect effects to eelgrass as a result of project construction. To facilitate accurate comparisons of pre-project and post-project eelgrass density and areal coverage, subsequent monitoring surveys will be conducted at a similar time during the growing season (e.g. June - early July) and using the same methodology as the baseline surveys conducted in June 2019. Analysis of the monitoring data will focus on detecting changes in the location of the eelgrass bed boundary, total areal coverage of eelgrass within a 250-foot radius of the project footprint, and changes in eelgrass shoot density.

Baseline surveys were conducted in June 2019 to delineate and characterize eelgrass beds in the vicinity of the proposed Action Area. June 3 and 4, 2019 were identified as appropriate sampling dates for the survey based on a strong minus morning low tide to maximize dewatering of the bay and resultant exposure of Z. marina. The survey team identified and delineated the boundaries and spatial distribution of the eelgrass beds in accordance with the protocols outlined in the document US Army Corps of Engineers Seattle District (2018), using the eelgrass bed edge definition described in NOAA Fisheries

¹¹ ORS 141-085-0695 (3) For publicly owned CWM sites, administrative protection may be provided through an adopted management plan. Such plan will provide for appropriate protection of the CM site as determined by the Department.

Western Region (2014).

To remain consistent with the 2019 baseline survey, monitoring surveys will consider eelgrass beds continuous if any eelgrass is within a one square meter quadrat and within one meter of another shoot. In areas where there are too few native eelgrass shoots to meet the bed thresholds described above, the survey map will indicate that widely scattered or sparse eelgrass shoots are present in the area, with no discernable beds. Within each bed, eelgrass shoot density will be measured using a series of $\frac{1}{4}$ square meter plots arranged in a regularly spaced grid. The positions of the survey points will be shown on GIS mapping. Data values will be converted to numbers of eelgrass shoots per square meter. Baseline surveys were also conducted in a reference area for use in interpreting the results of subsequent eelgrass monitoring surveys.

12. Maintenance/Long-term/Adaptive Management Plan

Creosote removal has proven to have such a high success rate for water quality restoration that the Washington Department of Natural Resources has removed 21,300 tons from the Puget Sound area in the last 15 years. Once conditions improve, eelgrass will naturally colonize the site and ongoing maintenance will not be necessary. Similarly, oyster seeding only requires an initial application, with no maintenance necessary. The proposed mitigation will not require maintenance nor long-term planning.

13. Financial Assurances

As a small primary, reliever, and general aviation airport, FAA Airport Improvement Project (AIP) grants cover a range of 90-95 percent of eligible costs, based on statutory requirements. The funding for this project is currently part of the 2021 AIP funding cycle, which includes mitigation as part of the construction of the RSA fill bulkhead.

Attachments

Photographs of mitigation sites at extreme low tide (06/23/2020, looking south).







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Portland District

Permit Transfer

This form may be used to transfer a Department of the Army (DA) Nationwide Permit verification, Regional General Permit verification, or Letter of Permission permit.¹ When the structures or work authorized by a DA permit are still in existence at the time the property is sold or transferred, the permittee may transfer the DA permit to the new owner(s). The DA permit may also be transferred when the permittee does not own the underlying property (e.g., structures on state aquatic lands). For some DA permits the permit must be transferred when the property ownership changes.

When a DA permit is transferred the terms and conditions of the permit, including any special conditions, will continue to be binding on the transferee. To validate the transfer of the DA permit and to accept the liabilities associated with complying with the terms and conditions of the permit, the transferee must sign and date below. This permit transfer form can be submitted by email at cenwp.notify@usace.army.mil or by regular mail at the following address:

U.S. Army Corps of Engineers
CENWP-ODG
P.O. Box 2946
Portland, OR 97208-2946

To transfer a Nationwide Permit verification a copy of the Nationwide Permit verification letter must be attached as required by Nationwide Permit General Condition 29.

Corps Number: NWP-2017-337

TRANSFeree:

Signature

Date

Name (Please print)

Address

City, State, and Zip Code

¹ This form may not be used to validate the transfer of a standard individual Department of the Army permit. The individual permit form includes a section for the transferee's signature.



US Army Corps
of Engineers®
Portland District

Compliance Certification

1. **Permit Number:** NWP-2017-337
2. **Permittee Name:** Coos County Airport District
3. **County Location:** Coos

Upon completing the activity authorized by the permit, please complete the sections below, sign and date this certification, and return it to the U.S. Army Corps of Engineers, Portland District, Regulatory Branch. The certification can be submitted by email at cenwp.notify@usace.army.mil or by regular mail at the following address:

U.S. Army Corps of Engineers
CENWP-OD-GL
P.O. Box 2946
Portland, OR 97208-2946

4. **Corps-required Compensatory Mitigation (see permit special conditions):**
 - a. Mitigation Bank / In-lieu Fee Credit Transaction Documents:

| | | |
|---|------------------------------------|-----------------------------------|
| <input type="checkbox"/> Not Applicable | <input type="checkbox"/> Submitted | <input type="checkbox"/> Enclosed |
|---|------------------------------------|-----------------------------------|
 - b. Permittee-responsible mitigation (e.g., construction and plantings) has been constructed (not including future monitoring). As-built report:

| | | |
|---|------------------------------------|-----------------------------------|
| <input type="checkbox"/> Not Applicable | <input type="checkbox"/> Submitted | <input type="checkbox"/> Enclosed |
|---|------------------------------------|-----------------------------------|
5. **Endangered Species Act – Standard Local Operating Procedures (SLOPES)**
(see permit special conditions):
 - a. SLOPES Action Completion Report:

| | | |
|--|------------------------------------|-----------------------------------|
| <input checked="" type="checkbox"/> Not Applicable | <input type="checkbox"/> Submitted | <input type="checkbox"/> Enclosed |
|--|------------------------------------|-----------------------------------|
 - b. SLOPES Fish Salvage Report:

| | | |
|--|------------------------------------|-----------------------------------|
| <input checked="" type="checkbox"/> Not Applicable | <input type="checkbox"/> Submitted | <input type="checkbox"/> Enclosed |
|--|------------------------------------|-----------------------------------|
 - c. SLOPES Site Restoration / Compensatory Mitigation Report:

| | | |
|--|------------------------------------|-----------------------------------|
| <input checked="" type="checkbox"/> Not Applicable | <input type="checkbox"/> Submitted | <input type="checkbox"/> Enclosed |
|--|------------------------------------|-----------------------------------|

I hereby certify the work authorized by the above-referenced permit has been completed in accordance with all of the permit terms and conditions.

Signature of Permittee

Date

Appendix W
Stormwater Pollution Control Plan



Oregon

John A. Kitzhaber, MD, Governor

Department of Environmental Quality
 Western Region Eugene Office
 165 East 7th Avenue, Suite 100
 Eugene, OR 97401
 (541) 686-7838
 FAX (541) 686-7551
 TTY 711

RECEIVED
 NOV 7 2011

November 3, 2011

Theresa Cook
 Coos County Airport District
 PO Box F
 North Bend, OR 97459-0022

BY: *RG*

Site Name: Southwest Regional Airport
 DEQ File Number: 107274
 Coos County

Receiving Waters: Coos Bay
 SIC code: 4582

RE: Renewal of NPDES Industrial Stormwater General Permit No. 1200-Z

Dear Theresa Cook,

On October 1, 2011, the Department of Environmental Quality (DEQ) issued revisions to the Industrial Stormwater General Permit No. 1200-Z (permit). The enclosed chart summarizes the key changes to the permit. For more information, you can also view the new requirements on DEQ's web page at: <http://www.deq.state.or.us/wq/stormwater/industrial.htm>.

Your coverage under the permit is scheduled to expire on June 30, 2011. In order to maintain coverage under the permit, please submit the following to DEQ's Eugene office at 165 E. 7th Ave. Suite 100, Eugene, OR 97401 by **March 31, 2012**.

- Renewal application form (enclosed)
- Updated Stormwater Pollution Control Plan (plan)- one paper copy and one electronic PDF version (preferably on a CD).
- Plan checklist (enclosed)

Renewal Application

The receiving waters and SIC code that DEQ has on record for your facility are provided above. Please confirm on the enclosed renewal application form that this information is correct. If your site has additional SIC codes, please include this information on the renewal application form. These SIC codes may differ from company-wide SIC Codes or those used for other programs such as worker's compensation insurance.

Plan

Please review your plan and amend it as necessary to ensure it is up to date, reflects current conditions at your site and meets the new permit requirements. Most of the plan requirements in the new permit did not change (see Schedule A, conditions 6 and 7). However, the following revisions to your plan are necessary:

- The new permit contains mandatory BMPs, called narrative effluent limits, (see Schedule A, condition 1) and sector specific requirements for certain industries (Schedule E). Include in your plan, the site specific BMPs that you will implement to meet these requirements. Include any additional sector specific information in the plan that is required in Schedule E.

- If your plan contains monitoring information such as benchmarks or monitoring frequencies, please update it to reflect the requirements in the new permit.

Please use the enclosed checklist to ensure your plan meets the new permit requirements and submit it with your plan. For additional technical assistance on updating your plan, please see DEQ's website, located at <http://www.deq.state.or.us/wq/stormwater/industrial.htm>.

Before renewing your coverage under the new permit, the public will have 30 calendar days to review your renewal application and updated plan. DEQ will post a notification on its web site that these materials can be reviewed at DEQ's regional office.

During the application process, your existing permit coverage will not expire until DEQ has taken final action on your renewal application. You will receive notification from DEQ that coverage under the new permit has been granted or denied. The new permit requirements will not become effective until this occurs.

If you do not submit a renewal application or request for termination, DEQ will terminate your permit coverage upon expiration of the existing 1200-Z permit (June 30, 2012). If you still need a permit at that time, you will be required to submit a new application, plan and permit fee of \$1,586. *Please be aware that operating without a permit is a violation and subject to enforcement action including civil penalties.*

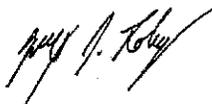
DEQ will hold the following training sessions throughout the western side of the state on the new requirements:

| |
|---|
| Time: Thursday, December 1, 8 to 10:00 am, 2 nd (repeat) session from 10:30 am to 12:30 pm |
| Place: City of Portland BES Water Pollution Control Laboratory, 6543 N. Burlington Ave., Portland |
| Time: Wednesday, December 7, 8 to 10:00 am, 2 nd (repeat) session from 10:30 am to 12:30 pm |
| Place: Clean Water Services Durham Facility, 16060 S.W. 85th Ave., Tigard |
| Time: Thursday, December 8, 2 to 4 pm |
| Place: Jackson County Library Medford Branch, 205 South Central Ave., Medford |
| Time: Friday, December 9, 1 to 3 pm |
| Place: DEQ Regional Office, 165 East 7th Ave., Eugene |

If you no longer conduct activities regulated by the 1200-Z permit or are no longer in business, please request that your permit coverage be terminated. The termination form is located on DEQ's website, at <http://www.deq.state.or.us/wq/wqpermit/docs/forms/terminationazcols.pdf>.

If you have any questions, or need to request an extension for more time to update your plan, please contact Mindi English at (541)686-7763 or by email at english.mindi@deq.state.or.us.

Sincerely,



Zach Loboy
Manager, Watersheds and Stormwater

Enclosures: Renewal Application Form
 Summary of Changes to Permit
 SWPCP Checklist

SIGNATURE OF LEGALLY AUTHORIZED REPRESENTATIVE:

A legally authorized representative must sign the application. The following are authorized to sign the document:

- ◆ **Corporation** — President, secretary, treasurer, vice-president, or any person who performs principal business functions; or a manager of one or more facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million that is authorized in accordance to corporate procedure to sign such documents
- ◆ **Partnership** — General partner *[list of general partners, their addresses and telephone numbers]*
- ◆ **Sole Proprietorship** — Owner(s) *[each owner must sign the application]*
- ◆ **City, County, State, Federal, or other Public Facility** — Principal executive officer or ranking elected official
- ◆ **Limited Liability Company** — Member
- ◆ **Trusts** — Acting trustee *[list of trustees, their addresses and telephone numbers]*

APPLICATION SUBMITTAL:

The following application materials must be completed and submitted by **March 31, 2012** to the DEQ regional office below: **Signed Application Form; Stormwater Pollution Control Plan (SWPCP), and SWPCP Checklist.**

No fees are required with this application.

| DEQ Regional Offices | | |
|--|--|---|
| DEQ Northwest Region 2020 SW 4 th Ave., Suite 400 Portland, OR 97201-4987 (503) 229-5263 or 1-800-452-4011 | DEQ Western Region 165 East 7 th Avenue, Ste. 100 Eugene, OR 97401-3049 (541)-687-7326 or 1-800-844-8467 | DEQ Eastern Region 700 SE Emigrant, Suite 330 Pendleton, OR 97801 (541) 276-4063 or 1-800-452-4011 |

| NORTHWEST REGION (county) | | WESTERN REGION (county) | | | |
|------------------------------|------------|----------------------------|-----------|----------|---------|
| Clackamas | Multnomah | Benton | Douglas | Lane | Marion |
| Clatsop | Tillamook | Coos | Jackson | Lincoln | Polk |
| Columbia | Washington | Curry | Josephine | Linn | Yamhill |
| EASTERN REGION (county) | | | | | |
| Baker | Gilliam | Hood River | Lake | Sherman | Wallowa |
| Crook | Grant | Jefferson | Malheur | Umatilla | Wasco |
| Deschutes | Harney | Klamath | Morrow | Union | Wheeler |



State of Oregon Department of Environmental Quality
New 1200-Z Permit Requirements

| Category | Old 1200-Z | New 1200-Z |
|--|--|---|
| Best Management Practices | Implement best management practices (BMPs) that are appropriate for the site and describe the BMPs in a Storm Water Pollution Control Plan (SWPCP). | Meet mandatory BMP requirements (for example, "erosion and sediment control" and "spill prevention and response"). These requirements are narrative technology based effluent limits in the permit. Describe specific details of BMPs used at the site to meet these requirements in the SWPCP. |
| Water Quality Based Effluent Limits | Do not cause a violation of in-stream water quality standards. | Do not cause or contribute to a violation of in-stream water quality standards. Facilities discharging to impaired waters that do not meet the state's water quality standards must meet additional monitoring requirements. |
| Benchmarks | Meet statewide stormwater discharge concentration benchmarks for copper, lead and zinc, total suspended solids, pH and oil and grease; also E. coli (for certain landfill and sewage treatment plants). | Meet lower metals benchmarks for copper, lead and zinc and meet EPA's sector-specific benchmarks for certain industrial sectors (for example, pulp mills and automobile salvage yards). |
| Other Pollutants | None | Monitor for a broader suite of metals (cadmium, chromium and nickel) to determine if they are present in industrial stormwater. |
| Benchmark Exceedances | Within 30 days of receiving water quality sample results that exceed a benchmark concentration, submit Action Plan that contains (1) results of review, (2) a corrective action, (3) and an implementation schedule. | Complete Tier I corrective actions are required when stormwater sample results exceed benchmark or impairment reference concentrations. Tier I requirements are similar to responses in the current permit, except only submit to DEQ or Agent changes made to SWPCP based on investigation. Retain Tier I corrective action report on site and submit to DEQ or Agent upon request. Tier II corrective actions are required if a second-year geometric mean concentration exceeds a benchmark. Must implement treatment BMPs within two years. Professional engineer or certified engineering geologist must design and stamp the portion of the SWPCP addressing the treatment measures. |
| Sampling | Sample 4 times per year. Samples must be collected at least 14 days apart. | Added requirement to monitor during first 12 hours of a stormwater discharge event. |
| Monitoring Waiver | Monitoring waiver can be obtained for individual parameters after four consecutive samples collected are at or below the benchmark or exceedance due to background or natural conditions. | Monitoring waiver can be obtained for individual parameters after four consecutive samples are at or below the benchmarks based on geometric mean evaluation or due to background natural conditions. |
| Inspections | Monthly inspections of areas where potential spills of significant materials or industrial activities occur, and where stormwater control measures, structures, catch basins, and treatment facilities are located. | Continued inspection of items listed at left and broadened what needs to be inspected. Clarified that visual observations of stormwater discharge can occur during the monthly inspection. Require facilities to document inspection results. |
| Documentation | Maintain and submit to DEQ or Agent all records of inspection, maintenance and repair, education activities, and any spills. | Identified priority reports that must be submitted to DEQ or Agent and reports that are retained on site (and only submitted upon request), such as: <ul style="list-style-type: none"> Continue to submit Discharge Monitoring Reports to DEQ or Agent on an annual basis; Retain/submit only if requested routine benchmark exceedance reports (Tier I corrective action) and monthly inspection reports. |

DEQ Industrial Stormwater Permits Stormwater Pollution Control Plan (SWPCP) Check List

Instructions: Complete this form and submit with SWPCP. Fill in the appropriate page number(s) indicating the location of information in the SWPCP. New requirements are highlighted and italicized.

Site Name:

File No.:

| Permit Schedule | | Requirement | Page # | Comments (For official use only) |
|---|-----------|--|--------|-------------------------------------|
| SIC codes | Sch. E | <i>Provide primary and any additional SIC Codes (in renewal application or in cover letter if already submitted application)</i> | | |
| Signature | A.6.b | Signed and certified in accordance with 40 CFR 122.22 | | |
| Title Page | A.7.a | Site Name | | |
| | | Site Owner or Operator | | |
| | | <i>Name(s) of the person(s) who prepared the plan</i> | | |
| | | DEQ Permit File (not ORR #) | | |
| | | Contact Person Name and Telephone Number | | |
| | | Site Physical Address, including County | | |
| | | Site Mailing Address (if different) | | |
| | | Plan Date | | |
| Site Description* | A.7.b.iii | Industrial activities conducted on-site (description of processes, products made, services provided, etc.) | | |
| | | Significant materials (include methods of storage, usage, treatment, and disposal) | | |
| General Location Map | A.7.b.i | Site in relation to surrounding properties, transportation routes, surface waters, and other relevant features. | | |
| Site Map* (please identify clearly) | A.7.b.ii | Drainage Patterns | | |
| | | Drainage and Discharge Structures (piping, ditches, etc.) | | |
| | | Drainage Area Outline for each Stormwater Outfall | | |
| | | Paved Areas, Equipment, Tanks, Buildings in each drainage area | | |
| | | Areas of Outdoor Manufacturing, Treatment, Storage or Disposal of Significant Materials | | |
| | | Stormwater Structural Control Measures | | |
| | | <i>Stormwater features to reduce flow or minimize impervious surfaces</i> | | |
| | | Material Loading and Access Areas | | |
| | | Used Oil, Hazardous Waste Treatment, Storage and Disposal Facilities | | |
| | | Location of Wells (including waste injection wells, seepage pits, and drywells) | | |
| | | Location of Springs, Wetlands and Surface Waterbodies (both on-site and adjacent to the site) | | |
| | | <i>Location of Non-Stormwater Discharges</i> | | |
| | | <i>Location of Sampling Points and Outfalls</i> | | |
| <i>Location of Spill Prevention and Cleanup Materials</i> | | | | |

AP-4
PH 2

| Permit Schedule | | Requirement | Page # | Comments (For official use only) |
|---------------------------------------|------------|---|--------------------|-------------------------------------|
| Potential Pollutants* | A.7.b.iv | Identify potential pollutants that could be present in stormwater for each drainage basin | | |
| Impervious Area | A.7.b.vi | Estimates, by individual stormwater outfall, of impervious area including paved areas and building roofs. | | |
| Receiving Waters | A.7.b.vii | Name(s) of the receiving water(s). If to a municipal storm sewer system include ultimate receiving waters and name of municipality. | | |
| Monitoring Locations* | A.7.b.viii | Identify discharge outfall(s) and sampling point(s) where stormwater monitoring will occur. | | |
| | | If all outfalls are not monitored, include description of outfalls, data, and analysis supporting outfalls are representative according to Schedule B.2.c. | | |
| Site Controls* | A.7.b.v | <p><i>Identify Best Management Practices to meet technology based requirements (Sch. A.1) and any applicable sector specific requirements (Sch.E):</i></p> <ul style="list-style-type: none"> • <i>Minimize Exposure,</i> • <i>Oil and Grease,</i> • <i>Waste Chemicals and Material Disposal,</i> • <i>Erosion and Sediment Control,</i> • <i>Debris Control,</i> • <i>Dust Generation and Vehicle Tracking,</i> • <i>Housekeeping,</i> • <i>Spill Prevention and Response,</i> • <i>Preventative Maintenance,</i> • <i>Employee Education, and</i> • <i>Non-Stormwater Discharges</i> | Ap # 4 P.3.4 | |
| Procedures and Schedules* | A.7.c | Spill Prevention and Response Procedures. Include methods to prevent spills along with clean-up and notification procedures. Spill prevention plans may be substituted if stormwater is adequately addressed. | | |
| | | Preventative Maintenance Procedures. Include procedures for inspection, maintenance and repairs, and schedule for regular pick up and disposal of waste materials, and inspection for leaks and condition of drums, tanks and containers Employee Education Schedule. Orientation w/in 30 days, education annually. | | |
| Monitoring Info from Previous Permit* | A.7.d | <i>Remove or update monitoring information if plan contains monitoring information from previous permit.</i> | | |

* Some facilities must meet sector specific requirements (Schedule E) and include additional information in SWPCP, including the site map. If applicable, ensure that the SWPCP includes the sector specific information.

For Official Use Only

Date received: _____ Plan Accepted: N/Y

Southwest Regional Airport
North Bend/Coos County, Oregon

1200-Z Permit Submittal
Storm Water Pollution Control Plan

Prepared for:

Coos County Airport District

Contact – Bob Hood
P.O. Box "F" 1100 Airport Lane
North Bend, OR 97459
Phone – (541) 756-8531

Prepared by:

WHPacific
9755 SW Barnes Road, Suite 300
Portland, Oregon 97225

Project Engineer:
Carl Chase
Engineer, PE

Project Manager:
Rainse Anderson
Manager, PE

| | |
|-----------------------|------------|
| DEQ File # | TBD 107274 |
| WHPacific Project No: | 34214 |
| Original: | 01/27/09 |
| Revision: | - |

**1200Z Permit Application
Southwest Oregon Regional Airport**



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- Figure 2 - Aerial Photo & Vicinity Map

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- Storm Report for Southwest Oregon Regional Airport; November, 2006

APPENDIX 3

- Record Keeping & Internal Reporting Procedures

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Rainse Anderson

1/29/09

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Southwest Oregon Regional Airport**



Schedule A

1. SITE DESCRIPTION

The airport's current configuration was established in 1935, when the city council acquired permits and funds to construct a three runway airport. The NE-SW runway (4-22) was to be 3,400 feet long, the SE-NW runway (16-34) was to be 3,900 feet long, and the E-W runway (13-31) was to be 3,450 feet long. Before that time, the airport consisted of a grassy landing strip with a few small hangar structures. In 1944, the United States Navy assumed ownership for use as a training station and coastal surveillance base. In late 1947, the government released their control and the airport was returned to the City of North Bend. By 1967 a triangular section of land totaling approximately 10.5 acres was conveyed to the U.S. Coast Guard for a heliport and base. A new terminal structure was built in 1963 and the fire and rescue station was constructed in 1964. Lighting was added to runways 4-22 and 13-31 in 1967 and 1968, respectively. Hughes Airwest provided air service from the mid-1970's to 1979. Air Oregon provided service from 1978 to 1981, at which time they were purchased by Horizon Air. Runway 4-22 was lengthened by approximately 1000 feet in 1988. In early 2006, construction began on the new terminal for Southwest Oregon Regional Airport, which included a new aircraft apron and air traffic control tower. The terminal and apron were completed in July 2008 and the tower is expected to be completed by October 2008. The Fuel Farm project located near the Hanger building was completed in 2008, providing a fuel transfer and storage station. The relocation of Taxiway C is currently under construction, and is due to be completed in December 2008. Runway 16-34 will be shut down for airplanes and used as a helicopter approach after October 2008.

The industrial activities conducted at the North Bend airport are primarily associated with Coos Aviation, Ocean Air, The Coast Guard, the Airport itself, and the new fuel farm. Contaminants related to the site result from the takeoff, landing, loading/unloading, refueling, maintenance, de-icing and taxiing of commercial as well as private airplanes and helicopters.

The commercial airline keeps a 55 gallon barrel of de-icer, as required by their company policy. However, the use of the chemicals is minimal due to the climate at the site location. A containment plan exists for the terminal area where de-icing can occur and is discussed in the 'Site Controls' section.

The maintenance and repair shop has a tank for the storage of used oil which is disposed of, on request, by a local commercial environmental service. The recently completed fuel farm, which contains 12,000 gallon fuel storage tanks (approx. 84,000 gallons of storage in total) also has a containment plan which is discussed in the 'Site Controls' section.

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Southwest Oregon Regional Airport**



2. SITE CONTROLS

The purpose of the following site controls is to eliminate or minimize the exposure of pollutants to stormwater and to remove pollutants from stormwater before it discharges to surface water. In developing a control strategy, the Southwest Oregon Regional Airport will develop, implement, and maintain the following four (4) types of controls in the SWPCP as listed below:

i) *Stormwater Best Management Practices* - The Southwest Oregon Regional Airport will employ the following types of best management practices that are appropriate for the site. A schedule for implementation of these practices is currently in place as part of the existing 1200Z permit for the site and an updated schedule is contained in the 'Schedule B' section of the SWPCP. The following BMP's are designated for the site:

(1) Containment - Two areas exist on-site with the potential to experience spills. These two areas are the fuel farm, where refueling occurs, and the terminal area, where de-icing can potentially occur. The fuel farm contains a two valve system, which operates in the closed state to automatically contain any oil spill if one should occur. All drainage from the fuel farm is conveyed from sumped catch basins to a coalescing oil & water separating vault. From this point, the maintenance staff can choose to have the drainage pumped out and properly disposed of by an outside source, or, if no oil is present, the valve can be opened and the discharge conveyed through a series of water quality swales to its eventual discharge into Coos Bay via Outfall #2.

The terminal area operates with a similar containment system. Discharge from the sumped catch basins in the area is conveyed to a collection manhole which then routes discharge to a storage vault during situations where de-icing is likely to occur or to a bypass during the situations where de-icing does not occur. The discharge routed to the storage vault will be pumped out and properly disposed of by a local environmental service. Discharge which passes through the bypass will then be conveyed through a series of water quality swales before discharging into Coos Bay via Outfall #1.

The topography of the site in these two areas is flat, with slopes typically less than 2.0%. The paving material in the noted areas is concrete, which will act as a barrier, not allowing any potential contaminate to infiltrate.

(2) Oil and Grease - As noted, a coalescing oil & water separator is contained at the fuel farm site to contain oil, grease, and solids. All newly constructed catch basins are sumped to provide some oil and grease separation as well as containment.

(3) Waste Chemicals and Material Disposal - The on-site maintenance shop contains a storage tank for the containment of used oils and is emptied periodically by a local environmental service. As noted, contaminated de-icer and oil discharge will be removed from their respective storage areas by a local environmental service. Trash enclosures are in sheltered locations and the discharge is conveyed to the sanitary sewer system for treatment. These

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storage tanks/vaults are single cast/mold objects, with negligible leakage potentials.

(4) Erosion and Sediment Control – A 1200-C permit was obtained with BMP's implemented during construction such as sediment fencing, inlet protection, and re-vegetating. Many of these items are still in place.

(5) Debris Control – All recently installed catch basins are sumped, lynch style catch basins in order to achieve some initial settlement of particulate as well as contain floatable particles and oils. The storm system associated with terminal building, parking area, and the approach road flows through a series of water quality swales before discharging from Outfall #1 into Coos Bay at the southwest section of the runway.

(6) Stormwater Diversion – Drainage and stormwater is diverted from fueling, storage, and disposal areas on-site by locating the said areas at relative high points within basins to minimize the amount of runoff that can come into contact with these areas.

(7) Covering Activities – Temporary measures, such as tarps, can be implemented to cover storage and/or work areas where pollutants may be exposed to stormwater, thereby reducing the chance of pollutants entering the containment mechanisms.

(8) Housekeeping - Sweeping, litter pick-up, prompt clean up of spills and leaks, and proper maintenance of vehicles will occur as noted on the maintenance schedule. Additional maintenance will be employed to eliminate or minimize exposure of stormwater to pollutants as needed.

ii) *Spill Prevention and Response Procedure* – As noted in the 'Containment' section, spill responses are designed to isolate any and all containments. Employees working in close proximity to potential spill or contaminant areas will be educated about the most effective means of spill prevention and how to respond in the event that a spill occurs (noted in section iv). The required clean-up material will be on-site or readily available and the location of materials shown on the site drawings.

iii) *Preventative Maintenance* – In order to ensure the effective operation of all stormwater best management practices, the following preventative maintenance is proposed:

(1) Monthly inspections of areas where potential spills of significant materials or industrial activities could impact stormwater runoff. This includes, but is not limited to, areas in and around the fuel farm, the de-icer storage tank, and the terminal loading areas.

(2) Monthly inspections of stormwater control measures, structures, catch basins, treatment facilities, and the coalescing plate oil/water separator.

(3) Cleaning, maintenance or repair of all materials handling, storage areas, and all stormwater control measures, structures, catch basins, and treatment facilities on an as needed basis and upon discovery of any contaminant. Cleaning,

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maintenance, and repair of these systems will be performed in such a manner as to prevent the discharge of pollution.

iv) *Employee Education* - An employee orientation and education program to inform personnel of the components and goals of the SWPCP will be conducted by the maintenance staff. The program will also address spill response procedures and the necessity of good housekeeping practices. The education and training will occur within 30 calendar days of hiring an employee who works in areas where stormwater is exposed to industrial activities or conducts duties related to the implementation of the SWPCP, and annually thereafter. A schedule will be documented by the maintenance staff of the time, location, and employee(s) attending the educational program for recording purposes.

Record Keeping and Internal Reporting Procedures – The maintenance staff will record and maintain on-site the following information, which does not need to be submitted to the department, agent or other government agencies, unless it is requested.

- i) Inspection, maintenance, repair and education activities as required by the SWPCP and stated in the sample frequency table below.
- ii) Spills or leaks of significant materials that impacted or had the potential to impact stormwater or surface waters will be noted. Corrective actions to clean up the spill or leak as well as measures to prevent future problems of the same nature will be noted on the Discharge Monitoring Report.

Outfall Structures – The airport has been constructed through a variety of small additions and improvements over the past 75 years. Consequently, several outfall locations exist with established drainage patterns. The site consists of the following outfall structures as depicted on 'Figure 1 – Basin Map':

Outfall #1 – Consists of two 36" pipes which collect water from both runway & taxiway areas, the terminal building, and the new parking area. The basin associated with this outfall drains approximately 145.6 acres (33.0 acres pervious, 112.6 acres impervious). After flowing through a series of swales, the runoff discharges into Coos Bay from the outfall with a double tide gate at the discharge point to prevent tidal inflows.

Outfall #2 – Consists of a 24" pipe which collects water from the renovated fuel farm. The discharge from this area is consistently monitored, with discharge not being allowed to pass from the coalescing plate oil/water separator until the maintenance staff has visually ensured no oil is present, at which time the valve opened from its normal closed state to allow for the treated runoff to be conveyed to the said outfall. Outfall #2 drains approximately 6.0 acres (0.5 acres pervious, 5.5 acres impervious) and has a double tide gate at the discharge point to prevent tidal inflows from its discharge point into Coos Bay.

Outfall #3 – Drains the northeastern portion of the airport, consisting of approximately 88.0 acres (59.7 acres pervious, 28.3 acres impervious). The outfall consists of two 24" pipes with double tide gates at the discharge point into Coos Bay.

Outfalls #4-#8 – Each outfall consists of a 10" storm drain pipe which collects approximately 1.0 acres of runway in the southeastern corner of the site. These outfalls

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have remained unchanged, other than routine maintenance, for approximately 20 years. Each outfall discharges into the Pony Slough, which connects to Coos Bay.

Outfall #9 – Consists of a 60" public storm drainage line which collects water from developed areas south and west of the airport. A 24" storm drainage pipe connects to this system approximately 380 feet from the discharge point. The connection pipe drains approximately 15.2 acres (6.2 acres pervious, 9.0 acres impervious) from the airport. The discharge point of this public system into the Pony Slough is through a tide gate to prevent tidal inflows and is maintained by the City of North Bend.

4. Non-Stormwater Discharges

a) The following non-stormwater discharges are authorized by this permit:

- i) Discharges from fire-fighting activities.
- ii) Fire hydrant flushings.
- iii) Potable water, including water line flushings.
- iv) Uncontaminated air conditioning condensate.
- v) Irrigation drainage.
- vi) Landscape watering, provided that all pesticides, herbicides, and fertilizer have been applied in accordance with manufacturer's instructions.
- vii) Pavement wash waters where no detergents or hot water are used, no spills or leaks of toxic or hazardous materials have occurred (unless all spilled material has been removed), and surfaces are swept before washing.
- viii) Routine external building washdown that does not use detergents or hot water.
- ix) Uncontaminated ground water or spring water.
- x) Foundation or footing drains where flows are not contaminated with process materials.
- xi) Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of the facility, but not intentional discharges from the cooling tower (e.g., "piped" cooling tower blowdown or drains).

b) Piping and drainage systems for interior floor drains and process wastewater discharge points must be separated from the storm drainage system to prevent inadvertent discharge of pollutants to waters of the state. Discharge from floor drains to the stormwater drainage system is a violation of this permit.

c) Any other wastewater discharge or disposal, including stormwater mixed with wastewater, must be permitted in a separate permit, unless the wastewater is reused or recycled without discharge or disposal, or discharged to the sanitary sewer with approval from the local sanitary authority.

5. Water Quality Standards

a) The Southwest Oregon Regional Airport must not cause a violation of instream water quality standards as established in OAR 340-041.

b) If the Southwest Oregon Regional Airport develops, implements, and revises its SWPCP in compliance with Schedule A of this permit, the department presumes that the discharges authorized by this permit will comply with instream water quality standards unless the department obtains evidence to the contrary. Coincident samples of the discharge and at upstream and downstream locations in the receiving waterbody at

**1200Z Permit Application
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outfall #1, outfall #2, outfall #3, and outfall #9 must be collected to establish a violation of an instream water quality standard is caused by the discharge.

c) In instances where the department determines that the permit registrant's stormwater discharges are not complying with instream water quality standards, the department may take enforcement action for violations of the permit and will require the permit registrant to do one or more of the following:

- i) Develop and implement an Action Plan that describes additional effective BMPs to address the parameters of concern and their locations at the site;
- ii) Submit valid and verifiable data and information that are representative of ambient conditions and indicate that the receiving water is meeting water quality standards; or
- iii) Curtail stormwater pollutant discharges to the extent possible and submit an individual permit application.

6. Discharges to Impaired Waterbodies - If a Total Maximum Daily Load (TMDL) Order (see condition D.3, Definitions) is established and the discharge from a permitted source is assigned a waste load allocation or is required to meet other conditions in the TMDL Order, then an application for an individual or different general permit or other appropriate tools may be required to address the allocation or other requirements.

STORMWATER DISCHARGE BENCHMARKS

7. Benchmarks - Benchmarks are guideline concentrations, not limitations. They are designed to assist the permit registrant in determining whether their SWPCP is effectively reducing pollutant concentrations in stormwater discharged from the site. For facilities that are subject to federal limitations, benchmarks apply to only those pollutants that are not limited by the federal regulations.

The following benchmarks apply to each point source discharge of stormwater associated with industrial activity:

| Parameter | Benchmark |
|---|----------------------|
| Total Copper | 0.1 mg/l |
| Total Lead | 0.4 mg/l |
| Total Zinc | 0.6 mg/l |
| pH* | 5.5 – 9.0 SU |
| Total Suspended Solids* | 130 mg/l |
| Total Oil & Grease* | 10 mg/l |
| Floating Solids (associated with industrial activities) | No Visible Discharge |
| Oil & Grease Sheen | No Visible Sheen |

* See condition A.7 for list of facilities subject to federal limitations.

**1200Z Permit Application
Southwest Oregon Regional Airport**



**SCHEDULE B
MONITORING AND REPORTING REQUIREMENTS**

1. **Monitoring Schedule** – The following stormwater monitoring is proposed for the outfalls #1-#3 & #9 of the site:

| GRAB SAMPLES OF STORMWATER* | |
|-----------------------------|---------------------|
| Parameter | Frequency** |
| Total Lead | Four times per Year |
| Total Copper | Four times per Year |
| Total Zinc | Four times per Year |
| pH | Four times per Year |
| Total Suspended Solids | Four times per Year |
| Total Oil & Grease | Four times per Year |

* For each outfall monitored, the permit registrant may collect a single grab sample or a series of equal volume grab samples. Samples must be collected from the same storm event.

** The permit registrant is allowed to collect more samples than the minimum frequency requires and must report this data.

| VISUAL MONITORING OF STORMWATER | |
|---|-----------------------------------|
| Parameter | Frequency |
| Floating Solids (associated with industrial activities) | Once per Month (when discharging) |
| Oil & Grease Sheen | Once per Month (when discharging) |

2. **Grab Sampling and Visual Monitoring Procedures and Locations** - The following requirements apply to monitoring conducted in compliance with condition B.1 above.

a) **Grab Sampling and Visual Monitoring Methodology** - The monitoring period is from July 1 to June 30th. Grab samples must be representative of the discharge and must be taken at least 14 calendar days apart. Two samples must be collected before December 31, and two samples must be collected after January 1. Time or flow-weighted compositing of samples may be used as an alternative to grab samples, except when monitoring for pH, oil and grease, and E. coli. Visual monitoring must occur at outfall(s) or discharge point(s) identified in the SWPCP as outfall(s) or point(s) where stormwater monitoring will occur.

b) **Multiple Point Source Discharges** - Each stormwater outfall must be monitored unless:

- i) The outfall serves an area with no exposure of stormwater to industrial activities; or
- ii) The outfall has effluent that is substantially similar to the effluent(s) of a monitored outfall and the same BMPs are implemented and maintained at the similar outfalls or drainage areas that lead to the outfalls. Substantially similar effluent(s) are discharges from drainage areas serving comparable activities where the discharges are expected to be similar in composition. The determination of substantial similarity or effluent(s) must be based on past monitoring or an analysis of industrial activities and site characteristics. The data or analysis supporting that the outfalls are representative must be included in the SWPCP as described in A.3.b.vii.
- iii) If sampling points are modified, permit registrants must notify the department or agent and submit an Action Plan as described in condition A.2.c. Only outfalls #1 & #2 have been modified, but contaminants *could* be collected by the

**1200Z Permit Application
Southwest Oregon Regional Airport**



drainage areas associated with outfalls #3 & #9. Outfalls #4-#8 are **not** being tested due to their unmodified condition, small drainage areas, and their location away from potential contaminants.

c) **Monitoring Location** - All samples must be taken at monitoring points specified in the SWPCP before the stormwater joins or is diluted by any other waste stream, body of water or substance, unless otherwise approved in writing by the department.

d) Sampling Variance

i) Permit registrants may request a sampling variance for missed samples if one of the following criteria is met:

- a) State or federal authorities declared the year a drought year.
- b) Demonstrate that rainfall in the area where the permit registrant's facility is located was 20% or more below the three-year average rainfall for that area.
- c) Demonstrate to the department or agent's satisfaction that samples were unable to be collected due to the infrequency of storm events of sufficient magnitude to produce run-off. Supporting data and analysis must be submitted to the department or agent.

ii) Permit registrants must submit to the department or agent a written request for a sampling variance by July 31st of the monitoring year in which the missed sampling occurred.

3. Monitoring Waiver

a) **Visual Observations** - There is no reduction allowed of the required visual observations.

b) **Grab Samples** - If at least four consecutive sampling results meet the benchmarks specified in condition A.8, the permit registrant is not required to collect grab samples for the remainder of the permit term. Where the permit registrant demonstrates to the department or agent's satisfaction that a benchmark exceedance resulted from background or natural conditions as described in condition A.9, the department or agent will consider these samples as meeting the benchmark(s) for the purposes of granting a monitoring waiver. There is no reduction in monitoring allowed for facilities subject to CFR limitations as described in condition A.7.

i) Results from sampling events cannot be averaged to meet the benchmarks.

ii) Monitoring waivers may be allowed for individual parameters.

iii) The permit registrant must submit to the department or agent a request to exercise the monitoring waiver that includes the analytical results from the four sampling events. If the department or agent does not comment within 30 calendar days, the monitoring waiver is deemed approved.

c) Revocation of Monitoring Waiver

i) The permit registrant must conduct monitoring as specified in condition B.1 if:

a) The department or agent determines that prior monitoring efforts used to establish the monitoring waiver were improper or sampling results were incorrect;

b) The department, agent or permit registrant determines that changes to site conditions are likely to affect stormwater discharge characteristics, or

c) The department, agent or permit registrant conducts additional monitoring and the sampling results exceed benchmark(s).

ii) The department or agent will notify the permit registrant in writing if the monitoring waiver is revoked.

**1200Z Permit Application
Southwest Oregon Regional Airport**



4. Monitoring Reporting Requirements - The permit registrant must submit the following to the appropriate DEQ regional office or agent:

a) **Monitoring Data** - The permit registrant must submit by July 31st of each year grab sampling and visual monitoring results for the previous monitoring period (July 1- June 30). The permit registrant must also report the minimum detection levels and analytical methods for the parameters analyzed. Non-detections must be reported as "ND" with the detection limit in mg/L parentheses, e.g., ND (0.005 mg/L). In calculating the geometric mean as described in condition A.10, one-half of the detection limits must be used for non-detections.

b) **Report Forms** - The permit registrant must use a department-approved Discharge Monitoring Report (DMR) form for both visual and analytical monitoring results

**1200Z Permit Application
Southwest Oregon Regional Airport**

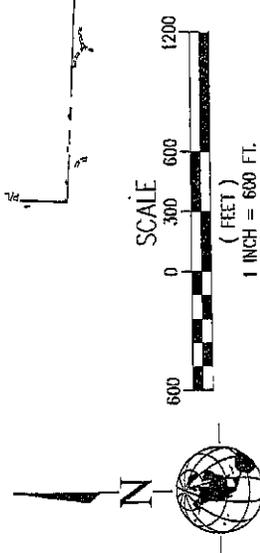
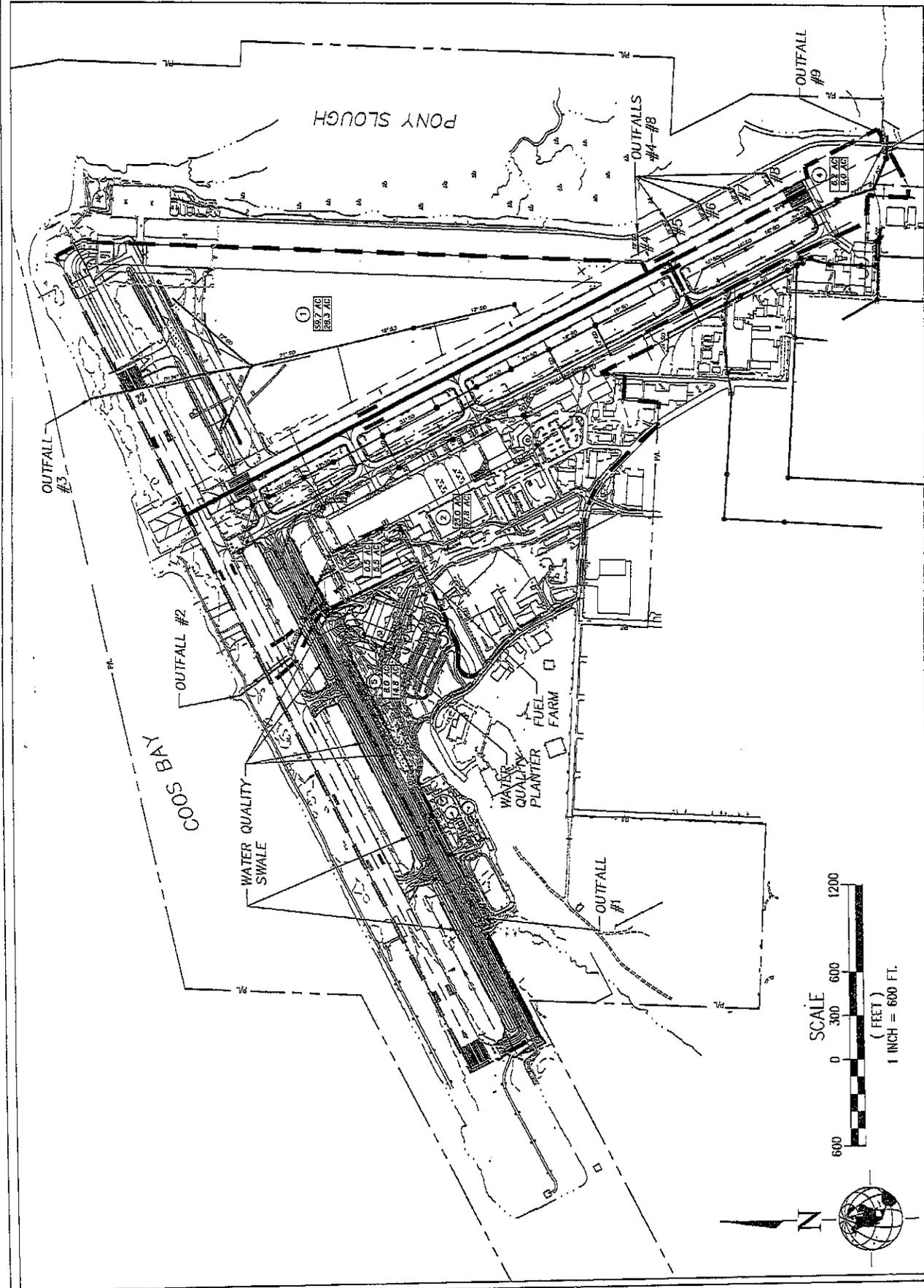


APPENDIX 1

- Figure 1 - Basin Map & Discharge Locations
- Figure 2 - Aerial Photo & Vicinity Map

| | | | |
|------------------------------|------|-----------------------------|----|
| PROJECT NUMBER: DS4214 | | DRAWING FILE NAME: DRAWING2 | |
| BASIN MAP | | | |
| COOS COUNTY AIRPORT DISTRICT | | | |
| SHEET NUMBER: 1 | | | |
| SHEET INFO | | REVISIONS | |
| DESIGNED BY | DATE | NO. | BY |
| CHECKED BY | DATE | NO. | BY |
| APPROVED BY | DATE | NO. | BY |
| LAST DATE: 1/28/2009 | DATE | NO. | BY |
| DATE: 1/28/2009 | DATE | NO. | BY |
| SCALE: 1"=600' | DATE | NO. | BY |

WHPacific
 2755 SW 8TH AVE. SUITE 200
 PORTLAND, OR 97205
 PHONE: 503.255.0775
 WWW.WHPACIFIC.COM



**1200Z Permit Application
Southwest Oregon Regional Airport**



APPENDIX 2

- Storm Report for Southwest Oregon Regional Airport; November, 2006

| Monthly Visual Observations | |
|-----------------------------|---|
| Date | Observations (please note important items only) |
| July | |
| August | |
| September | |
| October | |
| November | |
| December | |
| January | |
| February | |
| March | |
| April | |
| May | |
| June | |
| July | |

For facilities located within the following local jurisdictions, please submit one (1) copy of this report and laboratory results sheet(s) and QA/QC documentation to the local jurisdiction annually by July 31st:

| | | |
|---|---|--|
| Clean Water Services Industrial Stormwater 2550 SW Hillsboro Hwy. Hillsboro, OR 97123 | City of Portland Industrial Stormwater Section Water Pollution Control Laboratory 6543 N. Burlington Ave. Portland OR 97203-5452 | City of Eugene Industrial Source Control 410 River Avenue Eugene, Oregon 97404 |
|---|---|--|

For all other locations, please submit one (1) copy of this report and laboratory results sheet(s) and the QA/QC documentation to the appropriate DEQ regional office annually by July 31st:

Northwest



DEQ Northwest Region Office
 2020 SW 4th Avenue, Suite 400
 Portland, OR 97201
 Phone: (503) 229-5263
 Hours: 8 a.m. - 5 p.m.

DEQ Western Region Office
 750 Front St. NE #120
 Salem, OR 97301-4039
 Phone: (503) 378-8200
 Hours: Mon - Thurs: 8 a.m. - 5 p.m.
 Fri: 8 a.m. - 12 P.M., 1 P.M. - 5 p.m.

DEQ Eastern Region Office
 2148 NE 4th
 Bend OR 97701
 Phone: (541) 388-8146
 Hours: 8 a.m. - 5 p.m.

APPENDIX IX

DEQ Industrial Stormwater Permits Action Plan Form

Instructions: Fill out this form if you make routine changes to the Stormwater Pollution Control Plan or if stormwater sampling results show an exceedance of benchmark(s). If you need additional space to answer the questions below, please attach additional sheet(s).

1. Permit Registration Information

Date: _____

Facility Name: _____

Prepared By: _____

Phone Number: _____ E-mail Address: _____

2. If you are making routine changes to SWPCP, describe the proposed changes below:

3. If you are filling out this form in response to a benchmark(s) exceedance, please provide the following information:

(A) Describe the nature of the benchmark(s) exceedance and whether the SWPCP is being followed properly:

**NEW TERMINAL BUILDING
SOUTHWEST OREGON
REGIONAL AIRPORT**
North Bend, Oregon

**Permit Submittal
Drainage Report**

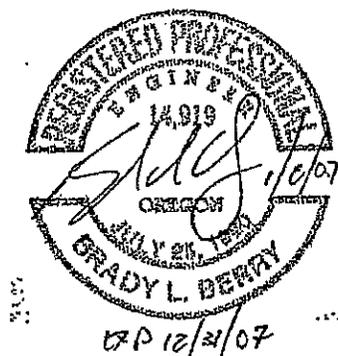
Prepared for:

Coos County Airport District
North Bend, Oregon

Prepared by:

W&H Pacific
9755 SW Barnes Road, Suite 300
Portland, Oregon 97225

Project Manager:
Brady Berry, P.E.



Original: November 29, 2006

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Water Quantity & Quality Design..... 3

Conclusions..... 4

Sources Of Information And Relevant References..... 4

Appendix 1

VICINITY MAP, EXISTING CONDITIONS MAP, SOILS DATA

Appendix 2

PROPOSED BASIN MAP, CONVEYANCE CALCULATIONS, SUPPORTING DOCUMENTS

Appendix 3

WATER QUALITY CALCULATIONS, SUPPORTING DOCUMENTS

Appendix 4

O&M PLAN & FORMS

Project Location

This approximate 95-acre site (see Appendix 1, Existing Conditions Plan) is located in the City of North Bend, south of the Southwest Oregon Regional Airport runway. It is bordered by Airport Lane to the east and Colorado Street to the south.

Purpose

The purpose of this report is to analyze the drainage requirements and impacts for development of the new terminal building for Southwest Oregon Regional Airport. This document quantifies the storm water management plan for the site. It also provides documentation of the drainage facility criteria.

Regulatory Design Criteria

The project is within the jurisdiction of the City of North Bend. For water quality standards, the city refers to the Department of Environmental Quality (DEQ) for enforcement.

The evaluation contained in this summary is based on the Clean Water Services Design and Construction Standards (dated March 2004), which effectively meets or exceeds DEQ requirements. Accordingly, all conveyance calculations included in this report are based on a 25 year frequency design storm event and a minimum time of concentration of five minutes as defined by CWS standards.

Existing Condition Hydrology

The majority of the existing site topography in the area of the proposed development consists of slopes ranging from 0 to 10 percent, with a majority of the site draining to the north. The remaining portions of the development site are relatively steep (grades greater than 20 percent) to the north and east.

A majority of the existing storm water run-off sheet flows across the site and collects in an existing wetland area, which is located northeast of Maxwell Road.

According to the Natural Resources Conservation Service (NRCS), the majority of the site is made up of Waldport fine sand, which is classified as a SCS hydrologic soil group A (see Appendix 4). These soils have a low runoff potential and high infiltration rates even when thoroughly saturated.

Proposed Site Conditions & Hydrology

The proposed development includes a new three story terminal building for the Southwest Oregon Regional Airport, an aircraft apron, three parking lots, roadway access, and site features such as sidewalks and landscape areas.

The proposed development has seventeen drainage sub-basins.

| Basin # | Impervious Area (ac) | Pervious Area (ac) |
|---------|----------------------|--------------------|
| 1 | 0.16 | 0.39 |
| 2 | 0.15 | 0.19 |
| 3 | 0.17 | 0.55 |
| 4 | 0.10 | 0.17 |
| 5 | 0.15 | 0.20 |
| 6 | 0.07 | 0.42 |
| 7 | 0.06 | 0.05 |
| 8 | 0.21 | 0.34 |
| 9 | 0.13 | 0.12 |
| 10 | 0.22 | 0.13 |
| 11 | 0.19 | 0.26 |
| 12 | 0.23 | 0.21 |
| 13 | 0.18 | 0.16 |
| 14 | 0.15 | 0.00 |
| 15 | 0.15 | 0.00 |
| 16 | 0.05 | 0.00 |
| 17 | 0.14 | 0.00 |

See Appendix 2 for calculations.

The proposed drainage sub-basins consist of impervious and pervious areas. Therefore a weighted runoff curve number was computed. The resulting curve number and calculated time of concentration are utilized by hydrographs to determine the proposed storm runoff.

| Basin # | CN / Time of Concentration (min) | 2-Year Peak Flow | 25-Year Peak Flow | 100-Year Peak Flow |
|---------|----------------------------------|------------------|-------------------|--------------------|
| 1 | 79 / 5 | 0.19 | 0.44 | 0.57 |
| 2 | 83 / 5 | 0.15 | 0.31 | 0.39 |
| 3 | 77 / 5 | 0.22 | 0.53 | 0.70 |
| 4 | 81 / 5 | 0.11 | 0.23 | 0.30 |
| 5 | 83 / 5 | 0.15 | 0.32 | 0.41 |
| 6 | 75 / 5 | 0.13 | 0.33 | 0.44 |
| 7 | 86 / 5 | 0.06 | 0.11 | 0.14 |
| 8 | 81 / 5 | 0.22 | 0.47 | 0.60 |
| 9 | 85 / 5 | 0.12 | 0.24 | 0.31 |

See Appendix 2 for calculations.

| Basin # | CN / Time of Concentration (min) | 2-Year Peak Flow | 25-Year Peak Flow | 100-Year Peak Flow |
|---------|----------------------------------|------------------|-------------------|--------------------|
| 10 | 88 / 5 | 0.20 | 0.37 | 0.46 |
| 11 | 82 / 5 | 0.19 | 0.40 | 0.51 |
| 12 | 85 / 5 | 0.22 | 0.43 | 0.54 |
| 13 | 85 / 5 | 0.17 | 0.33 | 0.42 |
| 14 | 98 / 5 | 0.12 | 0.19 | 0.23 |
| 15 | 98 / 5 | 0.12 | 0.19 | 0.23 |
| 16 | 98 / 5 | 0.04 | 0.06 | 0.08 |
| 17 | 98 / 5 | 0.11 | 0.18 | 0.22 |

See Appendix 2 for calculations.

Conveyance Methodology

The Santa Barbara Urban Hydrograph method with a 25 year storm event was used to determine proposed peak storm water flows. "Hydraflow" software was used to generate the hydrographs. These flow quantities were used in conjunction with Manning's equation to insure adequate capacity and flow velocities at a minimum of 3 feet per second through the new conveyance storm water system. The design storm distribution was taken from the U.S. Department of Agricultural isopluvial charts for Oregon, and a minimum time of concentration of five minutes was used.

| Design Storm Event | 24-Hour Precipitation |
|--------------------|-----------------------|
| 2-Yr | 3.5" |
| 25-Yr | 5.5" |
| 100-Yr | 6.5" |

(See Appendix 2 for conveyance calculations).

Water Quantity and Quality Design

Water quality swales were utilized for treatment of all site runoff and were designed to meet the requirements outlined in Section 2 of the Clean Water Services Design and Construction Standards Manual.

The swales were sized appropriately for the water quality design storm with a total precipitation of 0.36 inches falling in four hours with a storm return period of 96 hours.

$$\text{Water Quality Volume (cf)} = \{0.36\text{in.} \times \text{Area (sf)}\} / \{12 \text{ (in/ft)}\}$$

$$\text{Water Quality Flow (cfs)} = \{\text{Water Quality Volume (cf)}\} / \{14,400 \text{ (sec)}\}$$

| Swale # | Treatment Area (sf) | Water Quality Flow (cfs) |
|---------|---------------------|--------------------------|
| 1 | 106,150 | 0.22 |

The criteria used to design the water quality swales were:

- Design Flow: Water Quality Flow
- Minimum Hydraulic Residence Time: 9 minutes
- Maximum Water Design Depth: 0.5 feet
- Minimum Freeboard: 1 foot
- Manning's "n" value: 0.24
- Maximum Velocity: 2 fps based on 25 year flow
- Minimum Length: 100 feet
- Minimum Slope: 0.5 percent
- Minimum Bottom Width: 2 feet
- Maximum Side Slope In Treatment Area: 4H:1V
- Maximum Side Slope Above Treatment Area: 2.5H:1V

| Swale # | Bottom Width | Flow Depth | Velocity | Length |
|---------|--------------|------------|-----------|--------|
| 1 | 2' | 3.84" | 0.23 ft/s | 150' |

Please see Appendix 3 for swale design calculations.

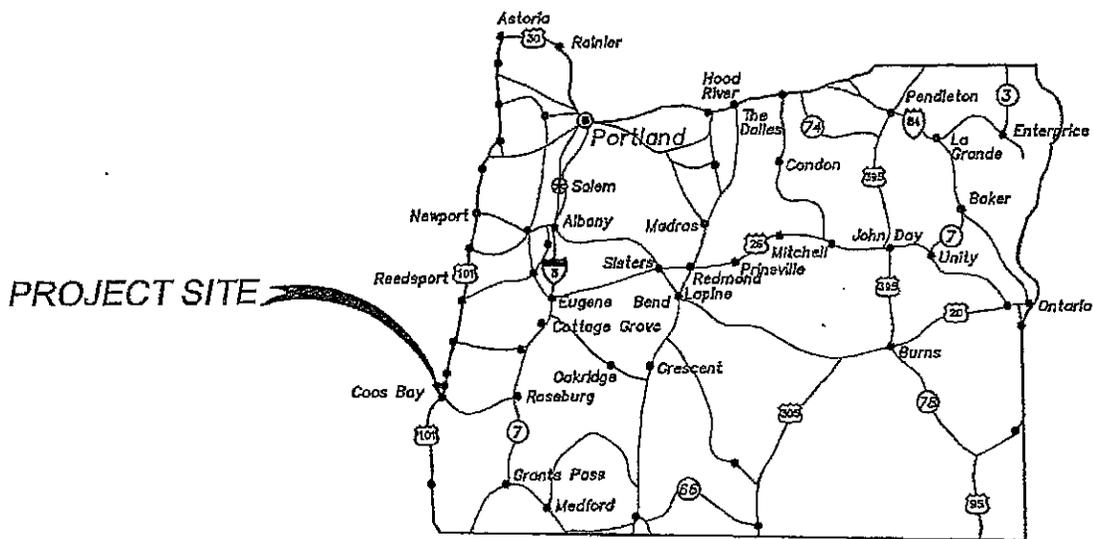
Maintenance: Water Quality Swales shall be maintained per Detail No. 530 "Water Quality Swale Construction & Maintenance Notes" of the Clean Water Services Design and Construction Standards.

Conclusions

This proposed development provides both water quality and water quantity based on the Clean Water Services Design and Construction Standards for Sanitary Sewer and Surface Water Management Manual.

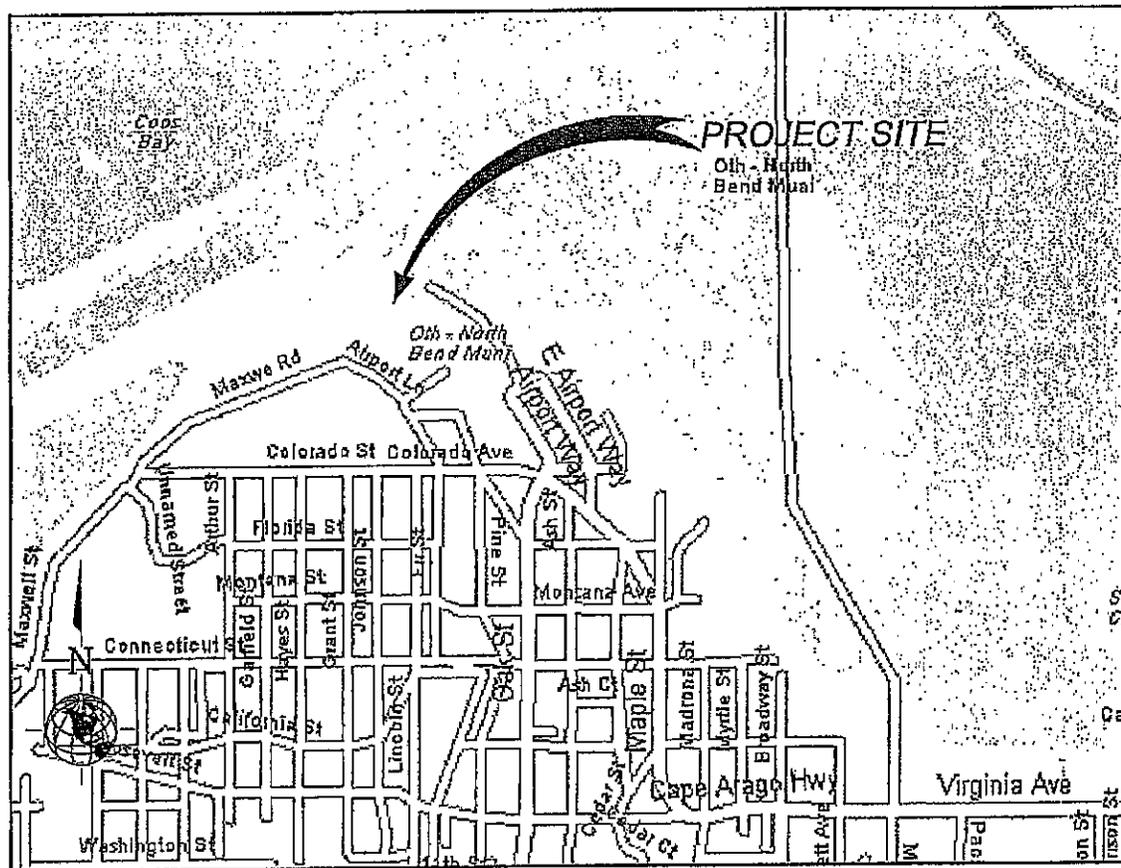
Sources of Information and Relevant References

- Clean Water Services Design and Construction Standards for Sanitary Sewer and Surface Water Management Manual dated March 2004.
- King County Surface Water Design Manual dated November 1992
- Soil Conservation Service Soil Survey for Coos County dated December 2005



VICINITY MAP

N.T.S.



PROJECT LOCATION

N.T.S.



Create Printable Document

Map Unit Legend Summary

| Map Unit | Legend Summary | Acres in AOI | Percent of AOI |
|----------|--|--------------|----------------|
| .59D | Waldport fine sand, 0 to 30 percent slopes | 27.2 | 100.0 |

Soil Map

(not to scale) Scale



FOIA | Accessibility Statement | Privacy Policy | Non-Discrimination Statement | Information Quality | FirstGov | White House

Water Features

Coos County, Oregon

| Map symbol and soil name | Hydrologic group | Surface runoff | Month | Water table | | Surface depth | Ponding | | Flooding | |
|--------------------------|------------------|----------------|---------|-------------|-------------|---------------|----------|-----------|----------|-----------|
| | | | | Upper limit | Lower limit | | Duration | Frequency | Duration | Frequency |
| SD: | | | | | | | | | | |
| Walport | A | -- | Jan-Dec | ft | ft | ft | | | None | None |

Water Features

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

"Hydrologic soil groups" are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

"Surface runoff" refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

The "months" in the table indicate the portion of the year in which a water table, ponding, and/or flooding is most likely to be a concern.

"Water table" refers to a saturated zone in the soil. The water features table indicates, by month, depth to the top ("upper limit") and base ("lower limit") of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

"Ponding" is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates "surface water depth" and the "duration" and "frequency" of ponding. Duration is expressed as "very brief" if less than 2 days, "brief" if 2 to 7 days, "long" if 7 to 30 days, and "very long" if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. "None" means that ponding is not probable, "rare" that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); "occasional" that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and "frequent" that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

"Flooding" is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

"Duration" and "frequency" are estimated. Duration is expressed as "extremely brief" if 0.1 hour to 4 hours, "very brief" if 4 hours to 2 days, "brief" if 2 to 7 days, "long" if 7 to 30 days, and "very long" if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. "None" means that flooding is not probable; "very rare" that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); "rare" that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); "occasional" that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); "frequent" that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year) but is less than 50 percent in all months in any year; and "very frequent" that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

26 YEAR EVENT - SANTA BARBARA URBAN HYDROGRAPH (SBUH)

Project: Coos County Airport Terminal Building
 Client: ZGF
 Job No.: 32436
 Designer: D. Peppemeier

IMPERVIOUS CN = 98
 PERVIOUS CN = 71

STORM 25-YR. 24-HR.
 DEFAULT n = 0.013

Orig: 21-Nov-2006
 Rev: 08-Jan-2007

| Pipe | Upstream Node | Downstream Node | SBUH Hydrology | | | Q CIA (cfs) | Upstream Elevation (ft) | Downstream Elevation (ft) | Len. (ft) | Slope % | Dia. In (in) | n | Q Cap. (cfs) | V (fps) | Flow Time (min) | This Reaches To at Downstream Node (min) |
|------|---------------|-----------------|--------------------------|----------------|-----------------|-------------|-------------------------|---------------------------|-----------|---------|--------------|------|--------------|---------|-----------------|--|
| | | | Initial Subarea Tc (min) | Total Tc (min) | I In/hr (in/hr) | | | | | | | | | | | |
| 1 | C1 | C3 | | | | 0.44 | 54.48 | 51.02 | 58.94 | 6 | 0.013 | 1.36 | 6.92 | 0.14 | 0.14 | |
| 2 | C2 | C3 | | | | 0.31 | 53.37 | 51.02 | 93.85 | 6 | 0.013 | 0.89 | 4.62 | 0.36 | 0.36 | |
| 3 | C3 | C5 | | | | 0.75 | 51.02 | 45.93 | 101.88 | 6 | 0.013 | 1.25 | 6.39 | 0.27 | 0.27 | |
| 4 | C4 | C5 | | | | 0.63 | 46.55 | 45.93 | 6.51 | 6 | 0.013 | 1.73 | 8.81 | 0.01 | 0.01 | |
| 5 | C5 | C7 | | | | 1.28 | 45.85 | 40.21 | 77.81 | 8 | 0.013 | 3.26 | 9.32 | 0.14 | 0.14 | |
| 6 | C6 | C7 | | | | 0.23 | 44.00 | 40.29 | 21.84 | 6 | 0.013 | 2.31 | 11.77 | 0.03 | 0.03 | |
| 7 | C7 | C14 | | | | 1.61 | 40.12 | 39.71 | 69.40 | 10 | 0.013 | 1.70 | 3.11 | 0.37 | 0.37 | |
| 8 | C8 | C10 | | | | 0.33 | 41.94 | 41.42 | 47.61 | 6 | 0.013 | 0.69 | 3.00 | 0.26 | 0.26 | |
| 9 | C9 | C10 | | | | 0.32 | 41.86 | 41.42 | 7.80 | 6 | 0.013 | 1.33 | 6.78 | 0.02 | 0.02 | |
| 10 | C10 | C14 | | | | 0.65 | 41.42 | 40.04 | 27.83 | 6 | 0.013 | 1.25 | 6.36 | 0.07 | 0.07 | |
| 11 | C11 | C13 | | | | 0.11 | 43.80 | 42.74 | 31.66 | 6 | 0.013 | 0.87 | 4.43 | 0.12 | 0.12 | |
| 12 | C12 | C13 | | | | 0.19 | 44.00 | 42.74 | 20.92 | 6 | 0.013 | 1.38 | 7.01 | 0.05 | 0.05 | |
| 13 | C13 | C14 | | | | 0.30 | 42.74 | 40.04 | 112.44 | 6 | 0.013 | 0.67 | 4.43 | 0.42 | 0.42 | |
| 14 | C14 | C16 | | | | 2.46 | 39.54 | 39.40 | 19.01 | 12 | 0.013 | 3.06 | 3.93 | 0.08 | 0.08 | |
| 15 | C15 | C16 | | | | 0.47 | 41.86 | 39.65 | 6.74 | 6 | 0.013 | 3.21 | 16.36 | 0.01 | 0.01 | |
| 16 | C16 | C18 | | | | 2.93 | 39.40 | 38.97 | 57.66 | 12 | 0.013 | 3.06 | 3.93 | 0.24 | 0.24 | |
| 17 | C17 | C18 | | | | 0.24 | 42.86 | 39.22 | 6.74 | 6 | 0.013 | 4.00 | 20.38 | 0.01 | 0.01 | |

25 YEAR EVENT - SANTA BARBARA URBAN HYDROGRAPH (SBUH)

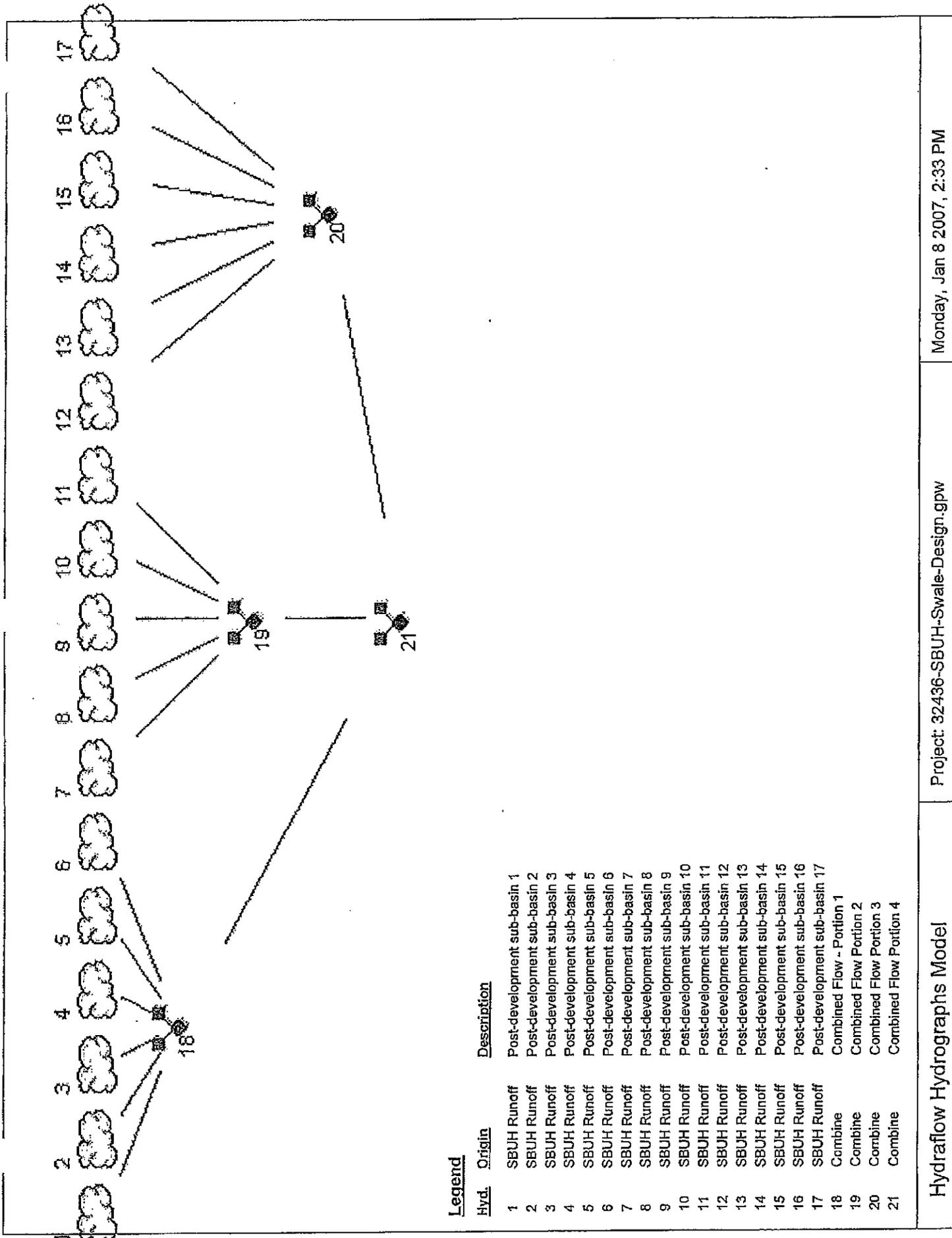
Project: Coos County Airport Terminal Building
 Client: ZCF
 Job No.: 32436
 Designer: D. Peppmeyer

IMPERVIOUS CN = 98
 PERVIOUS CN = 71

STORM 25-YR. 24-HR.
 DEFAULT n = 0.013

Orig: 21-Nov-2006
 Rev: 08-Jan-2007

| Pipe Sizing (via Manning's equation, full flow) | | | | | | | | | | | | | | | |
|---|---------------|-----------------|--------------------------|----------------|-----------------|-------------------------|---------------------------|-----------|---------|--------------|-------|--------------|---------|-----------------|--|
| Pipe | Upstream Node | Downstream Node | SBUH Hydrology | | | Upstream Elevation (ft) | Downstream Elevation (ft) | Len. (ft) | Slope % | Dia. In (In) | n | Q Cap. (cfs) | V (fps) | Flow Time (min) | This Reach's Tc at Downstream Node (min) |
| | | | Initial Subarea Tc (min) | Total Tc (min) | I in/hr (in/hr) | | | | | | | | | | |
| 18 | C18 | C20 | | | | 38.97 | 38.43 | 39.84 | 1.35 | 12 | 0.013 | 4.14 | 5.27 | 0.13 | OK |
| 19 | C19 | C20 | | | | 46.66 | 38.68 | 59.26 | 13.30 | 6 | 0.013 | 2.05 | 10.42 | 0.09 | OK |
| 20 | C20 | C22 | | | | 38.43 | 37.69 | 54.63 | 1.35 | 12 | 0.013 | 4.14 | 5.27 | 0.17 | OK |
| 21 | C21 | C22 | | | | 44.13 | 37.84 | 26.87 | 23.04 | 8 | 0.013 | 2.89 | 13.71 | 0.03 | OK |
| 22 | C22 | C26 | | | | 37.69 | 36.71 | 72.87 | 1.35 | 12 | 0.013 | 4.14 | 5.27 | 0.23 | OK |
| 23 | C23 | C25 | | | | 57.22 | 49.54 | 92.89 | 8.29 | 6 | 0.013 | 1.61 | 8.23 | 0.19 | OK |
| 24 | C24 | C25 | | | | 51.30 | 49.54 | 17.38 | 13.66 | 6 | 0.013 | 2.07 | 10.52 | 0.03 | OK |
| 25 | C25 | C26 | | | | 49.54 | 37.21 | 48.54 | 28.32 | 6 | 0.013 | 2.98 | 15.20 | 0.05 | OK |
| 26 | C26 | C31 | | | | 36.61 | 24.19 | 196.87 | 6.29 | 12 | 0.013 | 8.93 | 11.37 | 0.29 | OK |
| 27 | C27 | C28 | | | | 28.96 | 27.29 | 150.51 | 1.10 | 6 | 0.013 | 0.69 | 3.00 | 0.84 | OK |
| 28 | C28 | C30 | | | | 27.29 | 25.33 | 178.70 | 1.10 | 6 | 0.013 | 0.69 | 3.00 | 0.99 | OK |
| 29 | C29 | C30 | | | | 29.00 | 26.33 | 71.20 | 5.15 | 6 | 0.013 | 1.27 | 6.48 | 0.18 | OK |
| 30 | C30 | C31 | | | | 25.33 | 24.44 | 80.37 | 1.10 | 6 | 0.013 | 0.69 | 3.00 | 0.45 | OK |
| 31 | C31 | C32 | | | | 24.19 | 21.99 | 91.75 | 2.40 | 12 | 0.013 | 5.52 | 7.03 | 0.22 | OK |



Legend

| <u>Hvd.</u> | <u>Origin</u> | <u>Description</u> |
|-------------|---------------|-------------------------------|
| 1 | SBUH Runoff | Post-development sub-basin 1 |
| 2 | SBUH Runoff | Post-development sub-basin 2 |
| 3 | SBUH Runoff | Post-development sub-basin 3 |
| 4 | SBUH Runoff | Post-development sub-basin 4 |
| 5 | SBUH Runoff | Post-development sub-basin 5 |
| 6 | SBUH Runoff | Post-development sub-basin 6 |
| 7 | SBUH Runoff | Post-development sub-basin 7 |
| 8 | SBUH Runoff | Post-development sub-basin 8 |
| 9 | SBUH Runoff | Post-development sub-basin 9 |
| 10 | SBUH Runoff | Post-development sub-basin 10 |
| 11 | SBUH Runoff | Post-development sub-basin 11 |
| 12 | SBUH Runoff | Post-development sub-basin 12 |
| 13 | SBUH Runoff | Post-development sub-basin 13 |
| 14 | SBUH Runoff | Post-development sub-basin 14 |
| 15 | SBUH Runoff | Post-development sub-basin 15 |
| 16 | SBUH Runoff | Post-development sub-basin 16 |
| 17 | SBUH Runoff | Post-development sub-basin 17 |
| 18 | Combine | Combined Flow - Portion 1 |
| 19 | Combine | Combined Flow Portion 2 |
| 20 | Combine | Combined Flow Portion 3 |
| 21 | Combine | Combined Flow Portion 4 |

Hydrograph Return Period Recap

| Hyd. No. | Hydrograph type (origin) | Inflow Hyd(s) | Peak Outflow (cfs) | | | | | | | | Hydrograph description |
|----------|--------------------------|--|--------------------|------|------|------|-------|-------|-------|--------|-------------------------------|
| | | | 1-Yr | 2-Yr | 3-Yr | 5-Yr | 10-Yr | 25-Yr | 50-Yr | 100-Yr | |
| 1 | SBUH Runoff | ---- | ---- | 0.19 | ---- | ---- | ---- | 0.44 | ---- | 0.57 | Post-development sub-basin 1 |
| 2 | SBUH Runoff | ---- | ---- | 0.15 | ---- | ---- | ---- | 0.31 | ---- | 0.39 | Post-development sub-basin 2 |
| 3 | SBUH Runoff | ---- | ---- | 0.22 | ---- | ---- | ---- | 0.53 | ---- | 0.70 | Post-development sub-basin 3 |
| 4 | SBUH Runoff | ---- | ---- | 0.11 | ---- | ---- | ---- | 0.23 | ---- | 0.30 | Post-development sub-basin 4 |
| 5 | SBUH Runoff | ---- | ---- | 0.15 | ---- | ---- | ---- | 0.32 | ---- | 0.41 | Post-development sub-basin 5 |
| 6 | SBUH Runoff | ---- | ---- | 0.13 | ---- | ---- | ---- | 0.33 | ---- | 0.44 | Post-development sub-basin 6 |
| 7 | SBUH Runoff | ---- | ---- | 0.06 | ---- | ---- | ---- | 0.11 | ---- | 0.14 | Post-development sub-basin 7 |
| 8 | SBUH Runoff | ---- | ---- | 0.22 | ---- | ---- | ---- | 0.47 | ---- | 0.60 | Post-development sub-basin 8 |
| 9 | SBUH Runoff | ---- | ---- | 0.12 | ---- | ---- | ---- | 0.24 | ---- | 0.31 | Post-development sub-basin 9 |
| 10 | SBUH Runoff | ---- | ---- | 0.20 | ---- | ---- | ---- | 0.37 | ---- | 0.46 | Post-development sub-basin 10 |
| 11 | SBUH Runoff | ---- | ---- | 0.19 | ---- | ---- | ---- | 0.40 | ---- | 0.51 | Post-development sub-basin 11 |
| 12 | SBUH Runoff | ---- | ---- | 0.22 | ---- | ---- | ---- | 0.43 | ---- | 0.54 | Post-development sub-basin 12 |
| 13 | SBUH Runoff | ---- | ---- | 0.17 | ---- | ---- | ---- | 0.33 | ---- | 0.42 | Post-development sub-basin 13 |
| 14 | SBUH Runoff | ---- | ---- | 0.12 | ---- | ---- | ---- | 0.19 | ---- | 0.23 | Post-development sub-basin 14 |
| 15 | SBUH Runoff | ---- | ---- | 0.12 | ---- | ---- | ---- | 0.19 | ---- | 0.23 | Post-development sub-basin 15 |
| 16 | SBUH Runoff | ---- | ---- | 0.04 | ---- | ---- | ---- | 0.06 | ---- | 0.08 | Post-development sub-basin 16 |
| 17 | SBUH Runoff | ---- | ---- | 0.11 | ---- | ---- | ---- | 0.18 | ---- | 0.22 | Post-development sub-basin 17 |
| 18 | Combine | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, | ---- | 0.95 | ---- | ---- | ---- | 2.16 | ---- | 2.80 | Combined Flow - Portion 1 |
| 19 | Combine | 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, | ---- | 0.92 | ---- | ---- | ---- | 1.82 | ---- | 2.28 | Combined Flow Portion 2 |
| 20 | Combine | 12, 13, 14, 15, 16, 17, | ---- | 0.78 | ---- | ---- | ---- | 1.39 | ---- | 1.71 | Combined Flow Portion 3 |
| 21 | Combine | 18, 19, 20 | ---- | 2.64 | ---- | ---- | ---- | 5.36 | ---- | 6.78 | Combined Flow Portion 4 |

Hydrograph Summary Report

| Hyd. No. | Hydrograph type (origin) | Peak flow (cfs) | Time interval (min) | Time to peak (min) | Volume (cuft) | Inflow hyd(s) | Maximum elevation (ft) | Maximum storage (cuft) | Hydrograph description |
|-----------------------------|--------------------------|-----------------|---------------------|--------------------|-----------------------|-------------------------|------------------------|-----------------------------|-------------------------------|
| 1 | SBUH Runoff | 0.19 | 6 | 480 | 3,126 | --- | --- | --- | Post-development sub-basin 1 |
| 2 | SBUH Runoff | 0.15 | 6 | 480 | 2,294 | --- | --- | --- | Post-development sub-basin 2 |
| 3 | SBUH Runoff | 0.22 | 6 | 480 | 3,739 | --- | --- | --- | Post-development sub-basin 3 |
| 4 | SBUH Runoff | 0.11 | 6 | 480 | 1,675 | --- | --- | --- | Post-development sub-basin 4 |
| 5 | SBUH Runoff | 0.15 | 6 | 480 | 2,361 | --- | --- | --- | Post-development sub-basin 5 |
| 6 | SBUH Runoff | 0.13 | 6 | 480 | 2,316 | --- | --- | --- | Post-development sub-basin 6 |
| 7 | SBUH Runoff | 0.06 | 6 | 480 | 838 | --- | --- | --- | Post-development sub-basin 7 |
| 8 | SBUH Runoff | 0.22 | 6 | 480 | 3,411 | --- | --- | --- | Post-development sub-basin 8 |
| 9 | SBUH Runoff | 0.12 | 6 | 480 | 1,830 | --- | --- | --- | Post-development sub-basin 9 |
| 10 | SBUH Runoff | 0.20 | 6 | 480 | 2,882 | --- | --- | --- | Post-development sub-basin 10 |
| 11 | SBUH Runoff | 0.19 | 6 | 480 | 2,912 | --- | --- | --- | Post-development sub-basin 11 |
| 12 | SBUH Runoff | 0.22 | 6 | 480 | 3,221 | --- | --- | --- | Post-development sub-basin 12 |
| 13 | SBUH Runoff | 0.17 | 6 | 480 | 2,489 | --- | --- | --- | Post-development sub-basin 13 |
| 14 | SBUH Runoff | 0.12 | 6 | 474 | 1,779 | --- | --- | --- | Post-development sub-basin 14 |
| 15 | SBUH Runoff | 0.12 | 6 | 474 | 1,779 | --- | --- | --- | Post-development sub-basin 15 |
| 16 | SBUH Runoff | 0.04 | 6 | 474 | 593 | --- | --- | --- | Post-development sub-basin 16 |
| 17 | SBUH Runoff | 0.11 | 6 | 474 | 1,660 | --- | --- | --- | Post-development sub-basin 17 |
| 18 | Combine | 0.95 | 6 | 480 | 15,458 | 1, 2, 3, 4, 5, 6, | --- | --- | Combined Flow - Portion 1 |
| 19 | Combine | 0.92 | 6 | 480 | 13,659 | 7, 8, 9, 10, 11, | --- | --- | Combined Flow Portion 2 |
| 20 | Combine | 0.78 | 6 | 480 | 11,519 | 12, 13, 14, 15, 16, 17, | --- | --- | Combined Flow Portion 3 |
| 21 | Combine | 2.64 | 6 | 480 | 40,636 | 18, 19, 20 | --- | --- | Combined Flow Portion 4 |
| 32436-SBUH-Swale-Design.gpw | | | | | Return Period: 2 Year | | | Monday, Jan 8 2007, 2:22 PM | |

Hydrograph Summary Report

| Hyd. No. | Hydrograph type (origin) | Peak flow (cfs) | Time interval (min) | Time to peak (min) | Volume (cuft) | Inflow hyd(s) | Maximum elevation (ft) | Maximum storage (cuft) | Hydrograph description |
|-----------------------------|--------------------------|-----------------|---------------------|--------------------|------------------------|------------------------|------------------------|-----------------------------|-------------------------------|
| 1 | SBUH Runoff | 0.44 | 6 | 480 | 6,462 | --- | ---- | ---- | Post-development sub-basin 1 |
| 2 | SBUH Runoff | 0.31 | 6 | 480 | 4,480 | --- | ---- | ---- | Post-development sub-basin 2 |
| 3 | SBUH Runoff | 0.53 | 6 | 480 | 7,962 | --- | ---- | ---- | Post-development sub-basin 3 |
| 4 | SBUH Runoff | 0.23 | 6 | 480 | 3,363 | --- | ---- | ---- | Post-development sub-basin 4 |
| 5 | SBUH Runoff | 0.32 | 6 | 480 | 4,612 | --- | ---- | ---- | Post-development sub-basin 5 |
| 6 | SBUH Runoff | 0.33 | 6 | 480 | 5,088 | --- | ---- | ---- | Post-development sub-basin 6 |
| 7 | SBUH Runoff | 0.11 | 6 | 480 | 1,572 | --- | ---- | ---- | Post-development sub-basin 7 |
| 8 | SBUH Runoff | 0.47 | 6 | 480 | 6,850 | --- | ---- | ---- | Post-development sub-basin 8 |
| 9 | SBUH Runoff | 0.24 | 6 | 480 | 3,478 | --- | ---- | ---- | Post-development sub-basin 9 |
| 10 | SBUH Runoff | 0.37 | 6 | 480 | 5,267 | --- | ---- | ---- | Post-development sub-basin 10 |
| 11 | SBUH Runoff | 0.40 | 6 | 480 | 5,766 | --- | ---- | ---- | Post-development sub-basin 11 |
| 12 | SBUH Runoff | 0.43 | 6 | 480 | 6,122 | --- | ---- | ---- | Post-development sub-basin 12 |
| 13 | SBUH Runoff | 0.33 | 6 | 480 | 4,731 | --- | ---- | ---- | Post-development sub-basin 13 |
| 14 | SBUH Runoff | 0.19 | 6 | 474 | 2,865 | --- | ---- | ---- | Post-development sub-basin 14 |
| 15 | SBUH Runoff | 0.19 | 6 | 474 | 2,865 | --- | ---- | ---- | Post-development sub-basin 15 |
| 16 | SBUH Runoff | 0.06 | 6 | 474 | 955 | --- | ---- | ---- | Post-development sub-basin 16 |
| 17 | SBUH Runoff | 0.18 | 6 | 474 | 2,674 | --- | ---- | ---- | Post-development sub-basin 17 |
| 18 | Combine | 2.16 | 6 | 480 | 31,944 | 1, 2, 3, 4, 5, 6, | ---- | ---- | Combined Flow - Portion 1 |
| 19 | Combine | 1.82 | 6 | 480 | 25,962 | 7, 8, 9, 10, 11, | ---- | ---- | Combined Flow Portion 2 |
| 20 | Combine | 1.39 | 6 | 474 | 20,213 | 12, 13, 14, 15, 16-17, | ---- | ---- | Combined Flow Portion 3 |
| 21 | Combine | 5.36 | 6 | 480 | 78,118 | 18, 19, 20 | ---- | ---- | Combined Flow Portion 4 |
| 32436-SBUH-Swale-Design.gpw | | | | | Return Period: 25 Year | | | Monday, Jan 8 2007, 2:22 PM | |

Hydrograph Summary Report

| Hyd. No. | Hydrograph type (origin) | Peak flow (cfs) | Time Interval (min) | Time to peak (min) | Volume (cuft) | Inflow hyd(s) | Maximum elevation (ft) | Maximum storage (cuft) | Hydrograph description | |
|-----------------------------|--------------------------|-----------------|---------------------|--------------------|-------------------------|-------------------------|------------------------|-----------------------------|-------------------------------|--|
| 1 | SBUH Runoff | 0.57 | 6 | 480 | 8,244 | --- | ---- | ---- | Post-development sub-basin 1 | |
| 2 | SBUH Runoff | 0.39 | 6 | 480 | 5,625 | --- | ---- | ---- | Post-development sub-basin 2 | |
| 3 | SBUH Runoff | 0.70 | 6 | 480 | 10,243 | --- | ---- | ---- | Post-development sub-basin 3 | |
| 4 | SBUH Runoff | 0.30 | 6 | 480 | 4,256 | --- | ---- | ---- | Post-development sub-basin 4 | |
| 5 | SBUH Runoff | 0.41 | 6 | 480 | 5,790 | --- | ---- | ---- | Post-development sub-basin 5 | |
| 6 | SBUH Runoff | 0.44 | 6 | 480 | 6,603 | --- | ---- | ---- | Post-development sub-basin 6 | |
| 7 | SBUH Runoff | 0.14 | 6 | 480 | 1,951 | --- | ---- | ---- | Post-development sub-basin 7 | |
| 8 | SBUH Runoff | 0.60 | 6 | 480 | 8,669 | --- | ---- | ---- | Post-development sub-basin 8 | |
| 9 | SBUH Runoff | 0.31 | 6 | 480 | 4,334 | --- | ---- | ---- | Post-development sub-basin 9 | |
| 10 | SBUH Runoff | 0.46 | 6 | 474 | 6,490 | --- | ---- | ---- | Post-development sub-basin 10 | |
| 11 | SBUH Runoff | 0.51 | 6 | 480 | 7,268 | --- | ---- | ---- | Post-development sub-basin 11 | |
| 12 | SBUH Runoff | 0.54 | 6 | 480 | 7,628 | --- | ---- | ---- | Post-development sub-basin 12 | |
| 13 | SBUH Runoff | 0.42 | 6 | 480 | 5,895 | --- | ---- | ---- | Post-development sub-basin 13 | |
| 14 | SBUH Runoff | 0.23 | 6 | 474 | 3,409 | --- | ---- | ---- | Post-development sub-basin 14 | |
| 15 | SBUH Runoff | 0.23 | 6 | 474 | 3,409 | --- | ---- | ---- | Post-development sub-basin 15 | |
| 16 | SBUH Runoff | 0.08 | 6 | 474 | 1,136 | --- | ---- | ---- | Post-development sub-basin 16 | |
| 17 | SBUH Runoff | 0.22 | 6 | 474 | 3,182 | --- | ---- | ---- | Post-development sub-basin 17 | |
| 18 | Combine | 2.80 | 6 | 480 | 40,760 | 1, 2, 3, 4, 5, 6, | ---- | ---- | Combined Flow - Portion 1 | |
| 19 | Combine | 2.28 | 6 | 480 | 32,353 | 7, 8, 9, 10, 11, | ---- | ---- | Combined Flow Portion 2 | |
| 20 | Combine | 1.71 | 6 | 474 | 24,660 | 12, 13, 14, 15, 16, 17, | ---- | ---- | Combined Flow Portion 3 | |
| 21 | Combine | 6.78 | 6 | 480 | 97,773 | 18, 19, 20 | ---- | ---- | Combined Flow Portion 4 | |
| 32436-SBUH-Swale-Design.gpw | | | | | Return Period: 100 Year | | | Monday, Jan 8 2007, 2:22 PM | | |

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Monday, Jan 8 2007, 2:22 PM

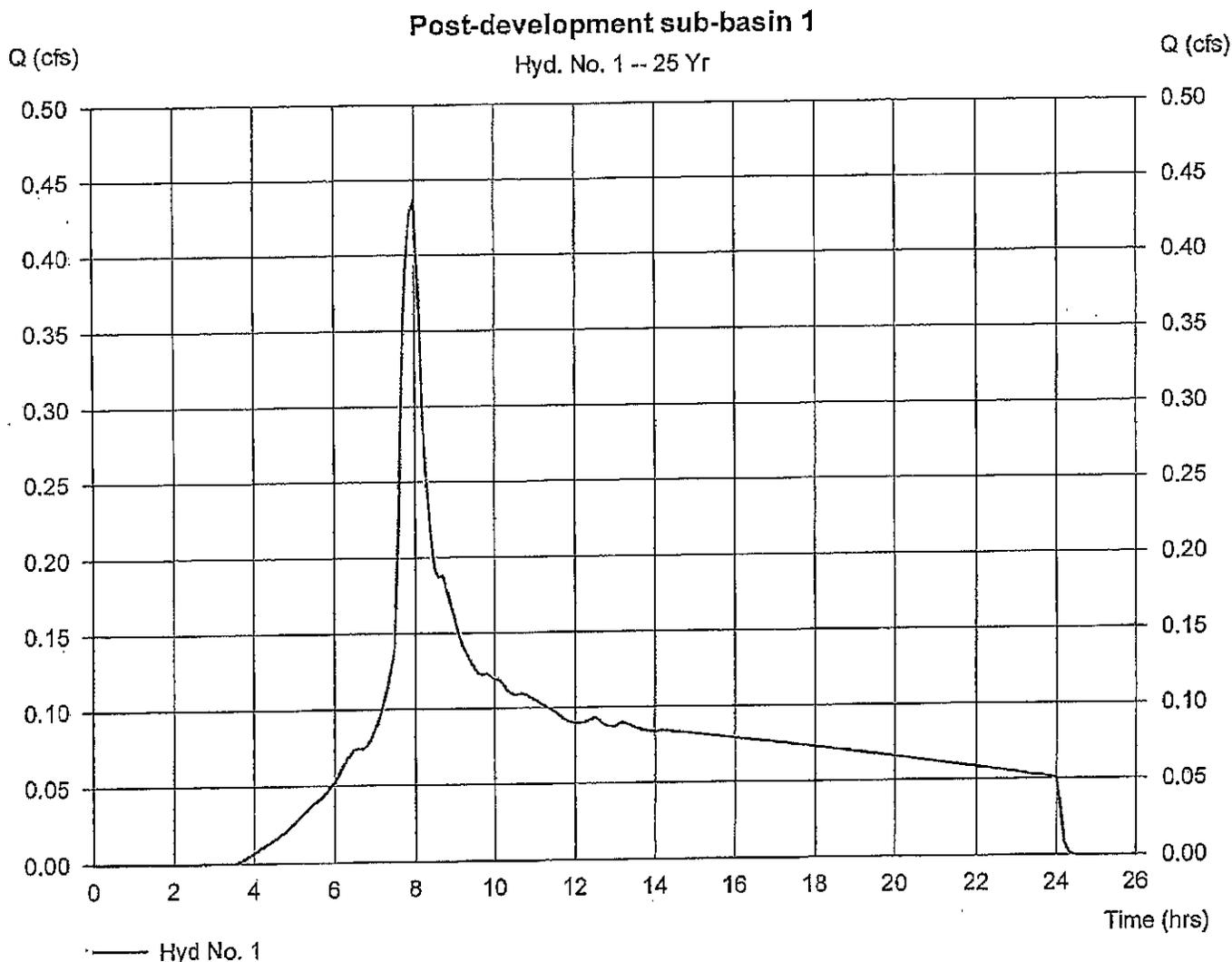
Hyd. No. 1

Post-development sub-basin 1

Hydrograph type = SBUH Runoff
 Storm frequency = 25 yrs
 Drainage area = 0.55 ac
 Basin Slope = 0.0 %
 Tc method = USER
 Total precip. = 5.50 in
 Storm duration = 24 hrs

Peak discharge = 0.44 cfs
 Time interval = 6 min
 Curve number = 79
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 5 min
 Distribution = Type IA
 Shape factor = N/A

Hydrograph Volume = 6,462 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intellisolve

Monday, Jan 8 2007, 2:22 PM

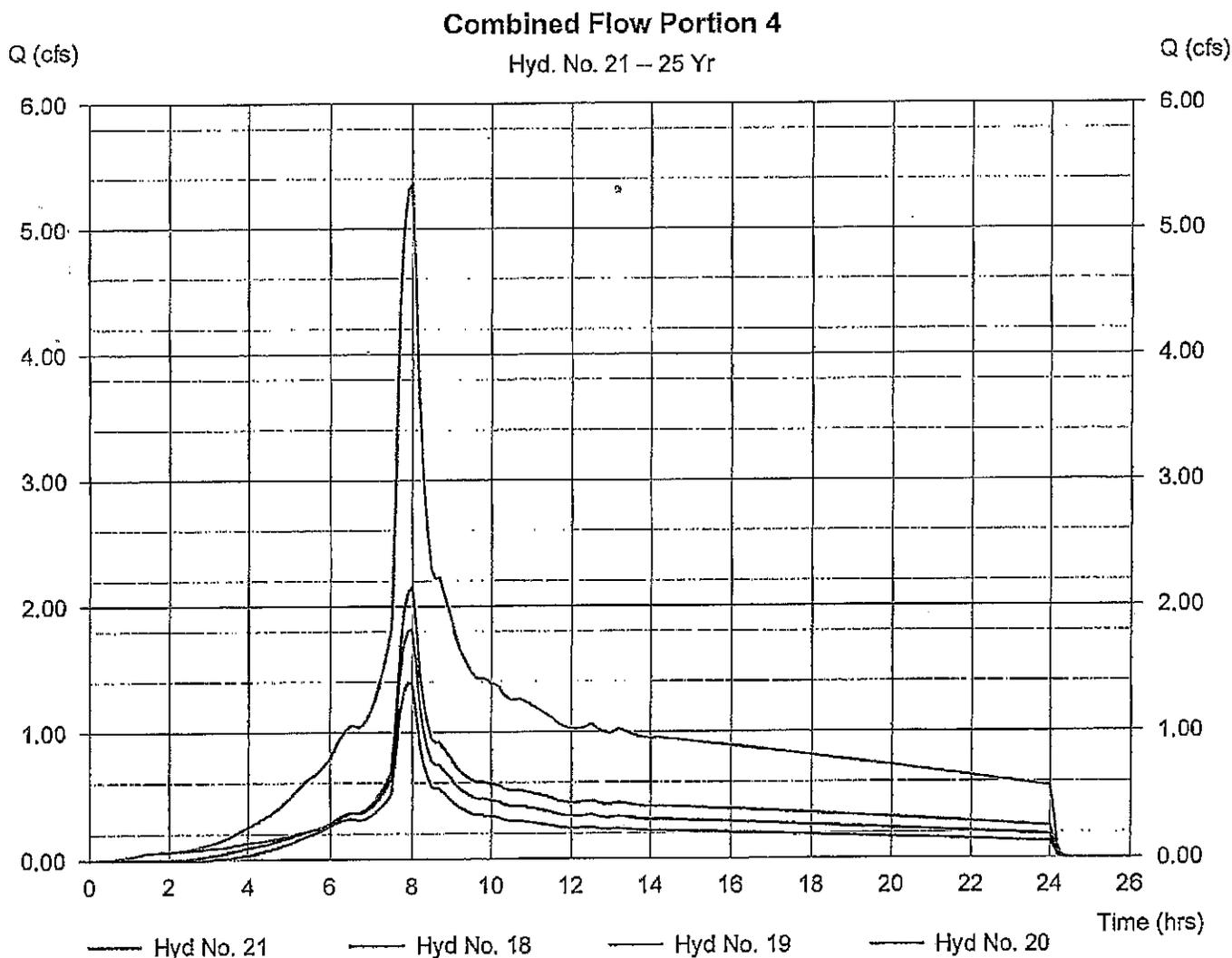
Hyd. No. 21

Combined Flow Portion 4

Hydrograph type = Combine
 Storm frequency = 25 yrs
 Inflow hyds. = 18, 19, 20

Peak discharge = 5.36 cfs
 Time interval = 6 min

Hydrograph Volume = 78,118 cuft



planners
surveyors
engineers
landscape architectsCWS DESIGN:

$$\begin{aligned} \text{Water Quality flow } Q(\text{cfs}) &= \frac{0.36(\text{in}) \times \text{Area}(\text{SF})}{12 \times 4 \times 60 \times 60} \\ &= \frac{0.36 \times 106,150}{12 \times 4 \times 60 \times 60} \\ &= \underline{\underline{0.22 \text{ cfs}}} \end{aligned}$$

Project _____ Subject _____ Sheet No. _____ of _____

Job No. _____ Prepared by _____ Date _____ Checked by _____ Date _____

**Coos County Airport Terminal Bldg
Worksheet for Trapezoidal Channel**

| Project Description | |
|---------------------|---|
| Project File | i:\transfer\jtruong\fmw\project2.fm2 |
| Worksheet | Coos County Airport Terminal Bldg Swale |
| Flow Element | Trapezoidal Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

| Input Data | |
|----------------------|-------------------------|
| Mannings Coefficient | 0.250 |
| Channel Slope | 0.010000 ft/ft |
| Left Side Slope | 3.00 H : V |
| Right Side Slope | 3.00 H : V |
| Bottom Width | 2.00 ft |
| Discharge | 0.22 ft ³ /s |

| Results | |
|----------------------|----------------------|
| Depth | 0.32 ft |
| Flow Area | 0.96 ft ² |
| Wetted Perimeter | 4.05 ft |
| Top Width | 3.95 ft |
| Critical Depth | 0.07 ft |
| Critical Slope | 2.309630 ft/ft |
| Velocity | 0.23 ft/s |
| Velocity Head | 0.81e-3 ft |
| Specific Energy | 0.33 ft |
| Froude Number | 0.08 |
| Flow is subcritical. | |

$$\begin{aligned} \text{RESIDENCE TIME} &= \frac{\text{SWALE LENGTH}}{\text{VELOCITY}} \\ &= \frac{150 \text{ FT}}{0.23 \frac{\text{FT}}{\text{S}} \times \frac{60 \text{ S}}{\text{MIN}}} = 10.87 \text{ min} \end{aligned}$$

> 9 min. ∴ OK.

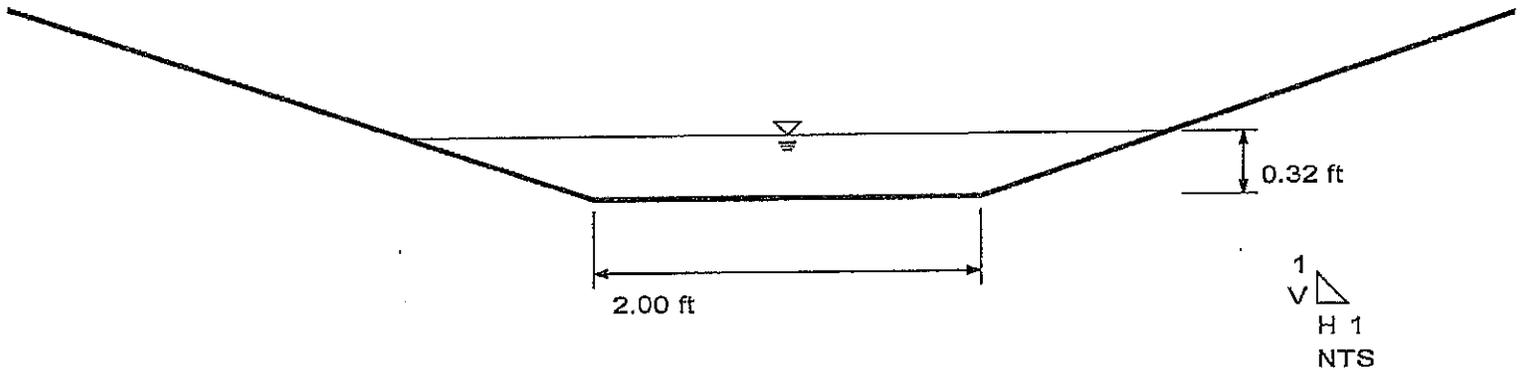
$$\text{Depth} = 0.32 \text{ ft} \times \frac{12 \text{ in}}{\text{ft}} = 3.84 \text{ in} < 6''$$

∴ OK.

Cross Section
Cross Section for Trapezoidal Channel

| Project Description | |
|---------------------|---|
| Project File | I:\transfer\jtruong\fmw\project2.fm2 |
| Worksheet | Coos County Airport Terminal Bldg Swale |
| Flow Element | Trapezoidal Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

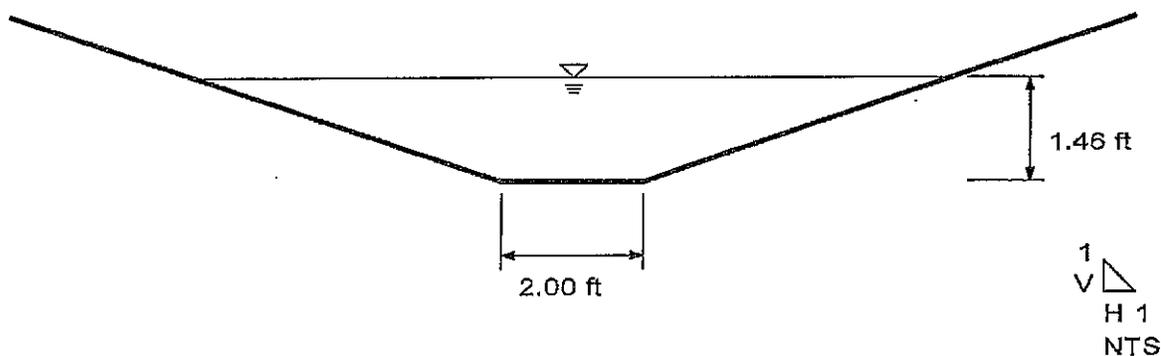
| Section Data | |
|----------------------|-------------------------|
| Mannings Coefficient | 0.250 |
| Channel Slope | 0.010000 ft/ft |
| Depth | 0.32 ft |
| Left Side Slope | 3.00 H : V |
| Right Side Slope | 3.00 H : V |
| Bottom Width | 2.00 ft |
| Discharge | 0.22 ft ³ /s |



**Cross Section
Cross Section for Trapezoidal Channel**

| Project Description | |
|---------------------|---|
| Project File | i:\transfer\truong\fmw\project2.fm2 |
| Worksheet | Coos County Airport Terminal Bldg Swale |
| Flow Element | Trapezoidal Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

| Section Data | |
|----------------------|-------------------------|
| Mannings Coefficient | 0.250 |
| Channel Slope | 0.010000 ft/ft |
| Depth | 1.46 ft |
| Left Side Slope | 3.00 H : V |
| Right Side Slope | 3.00 H : V |
| Bottom Width | 2.00 ft |
| Discharge | 4.90 ft ³ /s |



**Coos County Airport Terminal Bldg
Worksheet for Trapezoidal Channel**

| Project Description | |
|---------------------|---|
| Project File | i:\transfer\jtruong\fmw\project2.fm2 |
| Worksheet | Coos County Airport Terminal Bldg Swale |
| Flow Element | Trapezoidal Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

| Input Data | |
|----------------------|-------------------------|
| Mannings Coefficient | 0.250 |
| Channel Slope | 0.010000 ft/ft |
| Left Side Slope | 3.00 H : V |
| Right Side Slope | 3.00 H : V |
| Bottom Width | 2.00 ft |
| Discharge | 4.90 ft ³ /s |

| Results | |
|----------------------|----------------------|
| Depth | 1.46 ft |
| Flow Area | 9.33 ft ² |
| Wetted Perimeter | 11.25 ft |
| Top Width | 10.77 ft |
| Critical Depth | 0.45 ft |
| Critical Slope | 1.383516 ft/ft |
| Velocity | 0.52 ft/s |
| Velocity Head | 0.43e-2 ft |
| Specific Energy | 1.47 ft |
| Froude Number | 0.10 |
| Flow is subcritical. | |

APPENDIX 4

**STORMWATER QUALITY TREATMENT FACILITIES OPERATION
AND MAINTENANCE PLAN**

For:
Coos County Airport District
North Bend, Oregon

September 25, 2006

P:\Coos County Airport District\032436\Design\Reports\32436-o&m manual.doc

ASSUMPTIONS AND EXPECTATIONS

This storm drainage maintenance plan describes the operation and maintenance for storm drainage facilities proposed for the New Terminal Building for Southwest Oregon Regional Airport project, owned by Coos County Airport District.

This approximate 95-acre site is located in the City of North Bend, south of the Southwest Oregon Regional Airport runway. It is bordered by Airport Lane to the east and Colorado Street to the south.

The purpose of the plan is to prevent impacts of polluted storm water on the local groundwater. The plan is to include: system assessment, system controls, spill prevention and response, maintenance, employee and public education, and evaluation of effectiveness of the storm water management plan.

DESIGN/MAINTENANCE ASSUMPTIONS

The intent of this system is to achieve groundwater protection by treating the impervious area through the use of a water quality swale. Additional control measures include landscape depressions and sumped catch basins configured to minimize the potential of both accidental and illicit spills of contaminants that could impact groundwater.

To maintain healthy plant life and provide filtration of pollutants, the water quality swale will be regularly maintained. Dead plants will be removed and replaced as needed. Vegetation should be trimmed back periodically and the trimmings removed as determined by monitoring so that the pollutants that have been taken into the vegetation are not released back to the water quality swale at levels that would preclude new capture of pollutants. Use of pesticides and fertilizers will be minimized to protect groundwater and applied in minimal rates (follow manufacturer's specifications). Mulch and other debris should be kept clear of the water quality swale.

Assumptions of general site maintenance include periodic dry street sweeping of the parking lot, landscape and lawn mowing, and litter/debris removal. All landscape and maintenance personnel shall be trained to contain spills.

SPILL PREVENTION AND RESPONSE

Spill prevention is an important factor in the successful operation of a storm water management system. All employees will be trained to this plan so that they are certain of the location of any hazardous materials, who to notify in case of a spill, and how to initially contain the spill. Employees shall never dispose of materials into the storm water system. Employees will be observant of other potential contamination occurrences. All employees will review the following page regarding detailed spill response steps.

This data will be posted in an accessible area.

1. The spill kit is located in the maintenance room.

2. Get the spill kit (and kit instructions when provided)

- If possible, determine visually what type of fluids has been spilled.
- Put on gloves and glasses or any other necessary Personal Protective Equipment (PPE).
- Get the absorbent material provided in the kit and drain block covers.
- Place the absorbent materials in the path of the spill.
- Remove any debris from the vicinity of the inlets.
- Place the catch basin or area drain cover snugly over the inlet.
- Verify that the cover has full contact with the rim of the inlet.
- Use snakes, pillow, or pigs to completely contain the area

3. Notify the following personnel immediately:

- City of North Bend Fire and Emergency Services 911 ("hazardous material spill")
- Coos County Airport District Maintenance, Bob Hood 541.756.8531
- Department of Environmental Quality 503.229.5263 (ask for "duty officer")
- Oregon Emergency Management 1.800.452.0311 or 503.378.6377

Owner: Coos County Airport District
North Bend, OR

NOTE: Only dry cleanup methods will be employed to clean up spills (i.e., no use of water to wash spilled materials from pavement will be conducted).

MAINTENANCE PLAN

The owner must insure that the storm water systems efficiently perform their function. The following guidelines will be used for general maintenance of the storm water system:

1. Dry sweeping of the parking lot and dumpster area to reduce accumulation of sediments and debris in the depressions and water quality swale will be conducted regularly. Treatment areas clogged with sediment will fail.
2. Quarterly visual inspection of the swales and inlets for debris, discoloration, dead vegetation, obstructions, smell or ponding of stagnant water (of concern for mosquito breeding).
3. The vegetation within the swales will be maintained. Grasses will be trimmed no shorter than 3 inches from the ground surface.
4. Visual inspection of the entire storm water system after major storms for evidence of system problems.
5. Annual inspection of the spill kit to ensure all supplies are available and have not deteriorated or expired.
6. Annual inspection of the catch basin cover to ensure it's in the proper location and is in good working condition. (Check for cracks)
7. Biannual or quarterly cleaning of the ditch inlet. Sediments need to be removed along with any oils before the deposits reach one foot in depth and before the inlet/outlet is obstructed. Debris disposal needs to be done in accordance with applicable state law, and records of debris disposal will need to be kept on file for review by regulating agencies.
8. Attached are the manufacturer's inspection and maintenance instructions and a maintenance log. The log is to be kept available for inspection by the city/county and DEQ upon request.

| Month Year Initial & date | Inlets, Area Drains, Swales, Drainage System (quarterly) | Cleaning of the inlet & system (quarterly) | Spill kit (annual) | Catch Basin Cover (annual) |
|---------------------------------|--|--|-----------------------|-------------------------------|
| JANUARY | | | | |
| FEBRUARY | | | | |
| MARCH | | | | |
| APRIL | | | | |
| MAY | | | | |
| JUNE | | | | |
| JULY | | | | |
| AUGUST | | | | |
| SEPTEMBER | | | | |
| OCTOBER | | | | |
| NOVEMBER | | | | |
| DECEMBER | | | | |

Public education includes posted signage and personal observed inspection. Hands-on training may occur if owner or employees see public not following the rules. Signage to include wording such as (but not limited to): "Never dump waste materials into the catch basins."

EMPLOYEE TRAINING RECORD

All employees should complete the following training with a supervisor

Employees will be trained upon hiring and thereafter annually or when any new requirements are published, or when there are any changes to the system or equipment. Employee training will include;

- Reading this Storm Water Management Plan
- Familiarity of all contents and locations for materials indicated in the plan
- Spill response and Personal Protective Equipment (PPE)
- Documentation requirements

| | EMPLOYEE NAME (Print) | Employee Signature | Job Title | Date |
|----|--------------------------|--------------------|-----------|------|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |

EVALUATION OF EFFECTIVENESS OF STORM WATER MANAGEMENT PLAN

The storm water management plan is to be evaluated every five years or immediately after any documented spill incidents; this will allow for any necessary changes, additions or improvements to be incorporated. Any data collected during the year, or other reports, will be used for making improvements.

**1200Z Permit Application
Southwest Oregon Regional Airport**



APPENDIX 3

- Record Keeping & Internal Reporting Procedures



Oregon

Theodore Kulongoski, Governor

Appendix W

Department of Environmental Quality

Western Region Eugene Office

165 E. 7th Avenue, Suite 100

Eugene, OR 97401

(541) 686-7838

FAX (541) 686-7551

TTY (541) 687-5603

COPY

November 25, 2009

Robert Hood/Gary LeTellier
Coos County Airport District
PO Box F
North Bend, OR 97459-0022

RECEIVED

APR 08 2010

Re: NPDES 1200-Z Industrial Stormwater Discharge Permit Coverage
File No.: 107274 / EPA No. ORR80-1006
Site Loc. Southwest Regional Airport, Municipal Airport off Colorado Ave, North Bend
Coos County

Dear Mr. Hood and Mr. LeTellier:

In August 2006, the Oregon Environmental Quality Commission adopted a newly revised National Pollutant Discharge Elimination System Industrial Stormwater Discharge Permit No. 1200-Z. The purpose of the permit is to ensure that registrants assigned permit coverage are implementing adequate Best Management Practices to minimize adverse impacts to the environment from stormwater runoff and prevent violations of the state's instream water quality standards.

The Oregon Department of Environmental Quality (DEQ) has received and reviewed your application to renew your coverage under this permit, and DEQ is approving your registration under the new permit. *The permit will expire on June 30, 2012.* The following information highlights some of the key permit requirements as well as guidance to assist you with permit compliance.

Permit Provisions

Please review your copy of the permit carefully as there are new conditions and requirements, some of which are summarized below:

- Each monitored outfall must be sampled at least *four times during each monitoring period*, and each sample per outfall must be collected *at least fourteen calendar days apart*. The annual monitoring period runs from July 1st through June 30th. For the first half of the annual monitoring period (i.e. July 1st to December 31st), you must take two separate samples of your stormwater discharge – at least 14 days apart – at each monitored outfall as required by the permit. Additionally, you must take another two samples – at least 14 days apart – during the second half of the monitoring period (i.e. January 1st to June 30th). Furthermore, you must conduct *visual monitoring* of your outfalls *once a month* during periods of stormwater discharge.
- As required in the new permit, you must use the Department's Discharge Monitoring Report (DMR) form to report your stormwater sampling and visual monitoring results to the DEQ by July 31st each year. *No other monitoring report forms will be accepted.*

A copy of this form is attached to the permit. If additional copies are needed, please download the DMR form from the following Oregon Department of Environmental Quality's (DEQ) website:

<http://www.deq.state.or.us/wq/stormwater/industrial.htm#frms>



OK to file per Bob 4/8/10

- COPY
- If a stormwater sampling result exceeds any of the benchmark values listed in the permit, you must, **within 30 days** of receiving the sampling results, investigate the cause of the elevated pollutant levels, review the Storm Water Pollution Control Plan, and **submit an Action Plan for approval by the DEQ**. See Section A.9 of the permit for additional information about Action Plans. The action plan form is also available at the website listed above.
 - **By June 30, 2011**, you must evaluate the last four samples collected from each outfall monitored and **determine if the geometric mean** of the samples exceeds benchmark levels listed in the permit. This requirement is not applicable if you have a monitoring waiver as described in condition B.3 of the permit. Additionally, this information must be reported on the Department's DMR form and submitted to the DEQ by July 31, 2011. If the geometric mean of these sampling results exceeds any of the benchmark parameters, your permit coverage will be revoked and DEQ will require that you apply for an individual NPDES Permit.

DEQ has recently developed **guidance** that will assist with implementing some of these new permit requirements. This guidance includes general information about permit requirements, permit forms (including the DMR Form and the Action Plan form), as well as instructions for calculating the geometric mean. The guidance document, as well as other information such as technical assistance on best management practices, can be found on the following website:

<http://www.deq.state.or.us/wq/stormwater/industrial.htm>

Please be aware that you will be assessed an annual fee for each year of permit coverage.

If you have any questions about this permit, please contact Mindi English at (541) 686-7763 or Kristy Sewell at (541) 686-7858. Please send all written correspondence, including submittal of DMRs and any Action Plans, to: Industrial Stormwater Program, Oregon Department of Environmental Quality, Western Region - Eugene, 165 E. 7th Avenue, Suite 100, Eugene, OR 97401, attn: Mindi English or at English.Mindi@deq.state.or.us.

Sincerely,

Kathy Jacobsen
Water Quality Permit Coordinator
Western Region - Eugene Office
jacobsen.kathy.r@deq.state.or.us
(541) 687-7326

Enclosures: Permit, NEC, DMR, Comparison Sheet, pH Letter and Guidelines

cc: Source File/DEQ - Coos Bay
Mindi English, DEQ - Eugene



Oregon

Theodore R. Kulongoski, Governor

Appendix W

Department of Environmental Quality

Western Region - Eugene Office

165 E. 7th Avenue, Suite 100

Eugene, OR 97401-3049

(541) 686-7838

FAX (541) 686-7551

OTRS 1-800-735-2900

November 25, 2009

COPY

Robert Hood/Gary LeTellier
Coos County Airport District
PO Box F
North Bend OR 97459-0022

RECEIVED

APR 08 2010

Re: **Permit Action Letter**

Additional pH test method

File Number: 107274

Facility: Southwest Regional Airport, Municipal Airport off Colorado Ave, North Bend
Coos County

The Department has recently become aware of difficulties associated with pH monitoring for stormwater and adhering to the holding times for samples specified in 40 CFR 136. Monitoring of pH is required by your NPDES 1200-Z permit, and pH must be tested within fifteen minutes after collecting your stormwater sample to be valid and in compliance with the 1200-Z permit.

To assist you in meeting this requirement, the Department will allow the use of fresh pH paper that provides a sensitivity of at least three-tenths (0.3) standard units (i.e., accurate color matches for every 0.3 pH unit) or a properly calibrated portable pH meter to make a field measurement of pH.

If you intend to use pH paper, the Department recommends that you have pH paper available to cover the range of 1 to 14 standard units. This may require that you purchase several different series of pH paper to more accurately determine the pH of your stormwater discharge (e.g., pH paper with the range of 1.2 to 3.6, pH paper with the range of 2.8 to 5.2 etc.). As part of your quality assurance program, the Department also recommends that you record the expiration date, manufacturer, and lot number for the pH paper used when documenting your pH results.

This "Permit Action Letter" is an administrative modification to your NPDES 1200-Z permit. Please attach it to your permit. If you have any questions, please contact Mindi English at 541-686-7763 or Kristy Sewell at 541-686-7858.

Sincerely,

Mike Wolf
Water Quality Manager
Western Region

MW:rlh

ok to file per BMB 4/8/10



Performing Your Own Test of pH in Your Stormwater Samples

Suggestions for Data Sheets & Quality Assurance/Control Procedures

If you choose to analyze the pH of your stormwater discharge, you must develop a data sheet to document your results and record key information as well as the measures you have taken to evaluate the quality of your testing using pH paper. Submit your data sheets and quality assurance procedures along with the summary of your monitoring results that are submitted on the Discharge Monitoring Report form for a NPDES 1200-Z permit at the end of the monitoring year. This information will be used to evaluate the quality of your test results as well as your compliance with monitoring requirements.

The following information provides some suggestions for you to consider if you choose to do your own pH testing using either a pH meter or pH paper. If you are unfamiliar with developing a quality assurance (QA) plan for laboratory tests, seek the services of a consultant who can assist you with establishing a QA plan for your test procedures. The information below references guidelines for quality assurance and provides some suggestions on developing data sheets and quality assurance procedures for pH paper.

- 1) For an overview on a QA plan for test procedures, refer to documentation requirements in sections 1 – 5 of DEQ's *Quality Assurance Guidelines for NPDES and WPCF Self-Monitoring Laboratories*.
 - a) For a copy of these guidelines, go to DEQ Laboratory and Environmental Assessment Division's Quality Assurance Webpage: <http://www.deq.state.or.us/lab/techrpts/technicaldocs.htm>
 - b) For guidelines on using a pH meter, refer to Section 8 of the document noted above.
 - c) For guidelines on using pH paper, refer to the information below.

- 2) Prepare a data sheet to record the following information:
 - a) The **date** and **time** the sample was collected.
 - b) The **name** and **signature** of the person who collected the sample.
 - c) The **name** and **signature** of the person who performed the analysis and associated *quality assurance evaluation*.
 - d) The **time** the sample was analyzed using pH paper.

Note: the maximum allowable *holding time* before a sample is tested is *15 minutes*
 - e) Information about the pH paper used to analyze the pH of your stormwater sample:
 - i) Manufacturer's name for the pH paper.
 - ii) Product name for the pH paper.
 - iii) Lot number for the pH paper.
 - iv) Expiration date for the pH paper that you are using.
 - v) pH ranges for the pH paper that you use to analyze your stormwater sample.
 - (1) Use only fresh pH paper that provides a sensitivity of at least three-tenths (0.3) standard units (i.e., accurate color matches for every 0.3 pH unit).
 - (2) Obtain pH paper(s) that covers the range of 1 to 14 standard units

Note: This may require the purchase of several different series of pH paper to more accurately determine the pH of your stormwater discharge (e.g., pH paper with the range of 1.2 to 3.6, pH paper with the range of 2.8 to 5.2 etc.)

- 3) Document the quality assurance procedures used to evaluate the *precision* of the analysis using pH paper – *precision* is how close the measured values are to each other.
 - a) For example, indicate on your data sheet if you performed a **duplicate** analysis of your stormwater sample and *record the result* for this duplicate.

Note: a duplicate analysis is performed when you split, for instance, your stormwater sample and run a second analysis using the same batch of pH paper used to perform the analysis on the other half of your stormwater sample.

- b) When you perform a duplicate analysis, you should **average (M)** the result of your duplicate samples and, then, determine the **relative percent difference (RPD)** of your two results and report the RPD with the average for your pH result.
- i) Average (M) = (pH of sample A + pH of sample B) ÷ 2
 - ii) Percent Difference:
 - (1) If the pH of sample A is greater than the pH of sample B, then the RPD = (pH sample A – pH of sample B) ÷ M x 100 = _____%

OR

 - (2) If the pH of sample B is greater than the pH of sample A, then the RPD = (pH sample B – pH of sample A) ÷ M x 100 = _____%
- c) Record the **date** and **time** the duplicate analysis was performed.
Note: the duplicate analysis should be performed alongside the other half of the split sample.
- d) Record the **name** and **signature** of the individual who performed the duplicate analysis and determined the relative percent difference.
- e) Perform one duplicate of a stormwater sample each time you collect stormwater samples from your outfalls.
- 4) Document the quality assurance procedures you use to evaluate the *accuracy* of your analysis using pH paper - *accuracy* is the degree of closeness of a measured or calculated quantity to its actual (true) value.
- a) For example, indicate on your data sheet if you are using **standards** of known pH to evaluate whether the pH paper that you are using provides accurate results and record the following information:
 - i) Indicate the range of standards that were used to evaluate the accuracy of the pH papers that will be used to analyze your stormwater sample.
 - ii) Record the **date** and **time** the analysis of the standards was performed.
Note: the analysis the standards should be performed preferably on the day you collect your stormwater sample but before you actually collect and test the samples.
 - iii) Record the **name** and **signature** of the individual who performed the analysis of the standard.
 - b) If you use buffered solutions of known pH as standards to evaluate the accuracy of your pH paper, document the manufacturer's name, product name, lot number, and expiration date for these standards.
- 5) Document the quality assurance procedures you use to evaluate **blank samples** – *blank samples* are used to determine if your samples were contaminated by the receptacles used to collect the stormwater sample or by some other factor during field sampling and testing.
- a) For example, indicate on your data sheet if you used a **blank sample** to evaluate your test method for pH.
 - i) Record the **date** and **time** the blank analysis was performed.
Note: the analysis of the blank sample should be performed with all the other stormwater samples collected during that day's sampling event.
 - ii) Record the **name** and **signature** of the individual who performed the analysis of the blank sample.
 - b) Use one blank each time you collect stormwater samples for your outfalls.
 - c) Indicate, for instance, if you use distilled water for your blank sample and document the manufacturer's name, product name, lot number, expiration date, and date the distilled water was opened.

Industrial Stormwater Discharge Monitoring Report - 1200-Z Permit

| | | | | |
|-----------------------|--|--|----------------------|---------------------|
| Permittee Legal Name: | Coos County/Airport District | | ODEQ FILE NO.: | 107274 |
| Facility Common Name: | Southwest Regional Airport | | Reporting Period: | July 1, to June 30, |
| Facility Location: | Municipal Airport off Colorado Ave. North Bend | | Laboratory Name: | |
| County: | COOS | | Laboratory ORELAP #: | |

Monitor for the following pollutants at sampling point(s) specified in your SWPCP. Add more sheets if necessary (e.g., if more than 4 samples are collected per pollutant or facility has more than 4 sampling points). You MUST also attach a copy of laboratory results sheet(s) and associated QA/QC information to this form.

| Name or Number of Sampling Point(s) (group data per sampling point) | Sample Date | pH ** | Suspended Solids, Total ** | Oil and Grease, Total ** | Copper, Total | Lead, Total | Zinc, Total | E. coli * |
|---|-------------|---------|----------------------------|--------------------------|---------------|-------------|-------------|---------------|
| | | s.u. | mg/L | mg/L | mg/L | mg/L | mg/L | counts/100 ml |
| Geometric Mean (Note 4) | | | | | | | | |
| Geometric Mean (Note 4) | | | | | | | | |
| Geometric Mean (Note 4) | | | | | | | | |
| Geometric Mean (Note 4) | | | | | | | | |
| Geometric Mean (Note 4) | | | | | | | | |
| Permit Benchmark | | 5.5-9.0 | 130 | 10 | 0.1 | 0.4 | 0.5 | 400 |

* Only applies to landfills accepting septage/biosolids and sewage treatment plants.

** Effluent limits for these parameters apply to some industries - see permit, Schedule A.7.

Note 1: Submit this report to the appropriate DEQ regional or agent offices (see below) annually by July 31st. The report must contain the results of all stormwater monitoring conducted during the year. If you have a monitoring waiver for one or more of the pollutant(s), please report "M" in the column(s)-see permit-Schedule B.3.

Note 2: Non-detects must be reported as "ND", along with the applicable method detection limit in parentheses - e.g. ND (0.001).

Note 3: If a stormwater sampling result exceeds any of the benchmark values, the permit registrant must, within 30 calendar days of receiving the sampling results, investigate the cause of the benchmark exceedance(s), review the SWPCP and submit an Action Plan for department or agent approval.

Note 4: For the 4th year of coverage under the permit that became effective on July 1, 2007, report the geometric mean value of the last 4 samples collected for each pollutant parameter, from each sampling point. The geometric mean value is automatically calculated if using the Excel version of the DMR form.

Note 5: If a sampling event is missed or a sampling parameter is not analyzed or sampled, enter "NS" in each applicable column for that row. - The spreadsheet will recalculate and use the benchmark for that event in the calculation of the Geometric Means.

RECEIVED

APR 08 2010

| | |
|----------------|---|
| (Please Print) | Name/Title Principal Executive Officer or Authorized Delegate |
| Telephone: | Email: |

I certify, under penalty of law, that this document and all attachments were prepared under my direct supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Sign here: _____ Date _____

See reverse side for additional visual monitoring requirements

Monthly Visual Observations

Record Visual Observations for Oil and Grease Sheen and Floating Solids

Oil and Grease Sheen - No visible sheen allowed. Monthly observation when discharging for month when no discharge occurs, please write in "No Discharge" for that month.

Floating Solids (associated with industrial activities) - No visible discharge allowed. Monthly observation when discharging for month when no discharge occurs, please write in "No Discharge" for that month.

Observations (please note the sampling point(s), name or number)

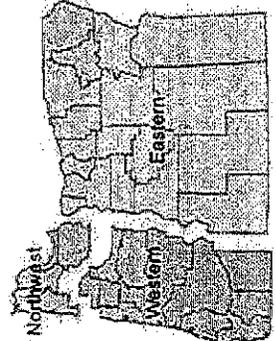
| Date | Observations (please note the sampling point(s), name or number) |
|-----------|--|
| July | |
| August | |
| September | |
| October | |
| November | |
| December | |
| January | |
| February | |
| March | |
| April | |
| May | |
| June | |

For facilities located within the following local jurisdictions, please submit one (1) copy of this report and laboratory results sheet(s) and QA/QC documentation to the local jurisdiction annually by July 31st:

Clean Water Services
 Industrial Stormwater
 2550 SW Hillsboro Hwy.
 Hillsboro, OR 97123

City of Portland
 Industrial Stormwater Section
 Water Pollution Control Lab
 6543 N Burlington Ave.
 Portland, OR 97203

City of Eugene
 Industrial Source Control
 410 River Ave.
 Eugene, OR 97404



For all other locations, please submit one (1) copy of this report and laboratory results sheet(s) and the QA/QC documentation to the appropriate DEQ regional office annually by July 31st:

DEQ Northwest Region Office
 2020 SW 4th Ave, Suite 400
 Portland, OR 97201
 Phone: (503) 229-5263
 Hours: 8 am - 5 pm

DEQ Western Region Office
 (Benton, Lincoln, Marion, Polk, and Yamhill counties)
 750 Front St NE, #120
 Salem, OR 97301-1039
 Phone: (503) 378-8240
 Hours: Mon - Thurs: 8 am - 5 pm
 Fri: 8 am - noon, 1 - 5 pm

DEQ Eastern Region Office
 475 NE Bellevue, Suite 110
 Bend, OR 97701
 Phone: (541) 388-6146
 Hours: 8 am - 5 pm

DEQ Western Region Office
 (Lane and Linn counties)
 1102 Lincoln St, Suite 210
 Eugene, OR 97401
 Phone: (541) 686-7838
 Hours: 8 am - 5 pm

DEQ Western Region Office
 (Coos, Curry, Douglas, Jackson, and Josephine counties)
 221 Stewart Ave, Suite 201
 Medford, OR 97501
 Phone: (541) 776-6010
 Hours: 8 am - noon, 1 - 5 pm



Department of Environmental Quality

04/08/2010

APR 08 2010

NO EXPOSURE CERTIFICATION
For Exclusion from NPDES Storm Water Permitting

Submission of this *No Exposure Certification* is required to notify DEQ that the entity identified in Section A does not require permit coverage for its storm water discharges associated with industrial activity under DEQ's NPDES industrial storm water general permit(s) due to a condition of no exposure. **Please review the criteria for qualifying for the no exposure conditional exclusion, described in the Instructions section on page 3 of this form, prior to completing the form.**

A *No Exposure Certification* must be provided for each facility qualifying for the no exposure exclusion. In addition, the exclusion from NPDES permitting is available on a facility-wide basis only, not for individual outfalls. If any industrial activities or materials are or will be exposed to precipitation, the facility is not eligible for the no exposure exclusion. Under penalty of the law by signing and submitting this *No Exposure Certification* form, the person signing for the entity in Section A is certifying that a condition of no exposure exists at its facility or site, and is obligated to comply with the terms and conditions of 40 CFR §122.26(g).

ALL INFORMATION MUST BE PROVIDED ON THIS FORM. Detailed instructions for completing this form and obtaining the no exposure exclusion are provided on page 3 and 4.

A. Facility Operator Information

- 1. Legal Name: _____
- 2. Phone: _____ 3. Email Address: _____
- 4. Mailing Address: _____
 Street: _____
 City: _____ State: _____ Zip Code: _____

B. Facility/Site Location Information

- 1. Facility Name: _____
- 2. Street Address: _____
 City: _____ State: _____ Zip Code: _____ County: _____
- 3. Legal Status of Applicant: Federal State Public Private Other, specify: _____
- 4. Was the facility or site previously covered under an NPDES storm water permit? Yes No
 If yes, enter NPDES permit type and file number: _____
- 5. Primary SIC Code: _____ Secondary SIC code (if applicable): _____
- 6. Total size of site in acres associated with industrial activity: _____
- 7. Have you paved or roofed over a formerly exposed, pervious area in order to qualify for the no exposure exclusion?
 Yes No If yes, please indicate approximately how much area was paved or roofed over. Completing this question does not disqualify you for the no exposure exclusion. However, DEQ may use this information in considering whether storm water discharges from your site are likely to have an adverse impact on water quality, in which case you could be required to obtain permit coverage.
 Less than one acre One to five acres More than five acres
- 8. Please indicate if any of the following activities occur at your facility (DEQ may use this information in assessing which facilities to inspect to verify the no exposure condition exists):
 Vehicle washing
 Fueling of vehicles or equipment
 Vehicle repair and/or maintenance

04/10 Date 04/08



NO EXPOSURE CERTIFICATION
For Exclusion from NPDES Storm Water Permitting

C. Exposure Checklist

Are any of the following materials or activities exposed to precipitation, now or in the foreseeable future?
(Please check "Yes" or "No".) **IF YOU ANSWER "YES" TO ANY OF THESE QUESTIONS, THE FACILITY IS NOT ELIGIBLE FOR THE NO EXPOSURE EXCLUSION.**

| | Yes | No |
|--|--------------------------|--------------------------|
| 1. Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning Industrial machinery or equipment remain and are exposed to storm water | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Materials or residuals on the ground or in storm water inlets from spills/leaks | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Materials or products from past industrial activity | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Material handling equipment (except adequately maintained vehicles) | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Materials or products during loading/unloading or transporting activities | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Materials or products stored outdoors (except final products intended for outside use [e.g., new cars] where exposure to storm water does not result in the discharge of pollutants) | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Materials or products handled/stored on roads or railways owned or maintained by the discharger | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Waste material (except waste in covered, non-leaking containers [e.g., dumpsters]) | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Application or disposal of process wastewater (unless otherwise permitted) | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Particulate matter or visible deposits of residuals from roof stacks and/or vents not otherwise regulated (i.e., under an air quality control permit) and evident in the storm water outflow | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Storm resistant shelters with unsealed zinc or copper roofing materials | <input type="checkbox"/> | <input type="checkbox"/> |

D. Certification Statement

I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of "no exposure" and obtaining an exclusion from NPDES storm water permitting.

I certify under penalty of law that there are no discharges of storm water contaminated by exposure to industrial activities or materials from the industrial facility or site identified in this document (except as allowed under 40 CFR §122.26(g)(2)).

I understand that I am obligated to submit a no exposure certification form once every five years to DEQ and, if requested, to the operator of the local municipal separate storm sewer system (MS4) into which the facility discharges (where applicable). I understand that I must allow the NPDES permitting authority, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request. I understand that I must obtain coverage under an NPDES permit prior to any point source discharge of storm water from the facility.

Additionally, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name: _____ Print Title: _____
Signature: _____ Date: _____

DEQ USE ONLY

| | |
|-------------------------|-----|
| Date Approved: | By: |
| Date Facility Notified: | By: |

Comments:



Instructions for the NO EXPOSURE CERTIFICATION For Exclusion from NPDES Storm Water Permitting

Who May File a No Exposure Certification?

Federal law prohibits point source discharges of storm water associated with industrial activity to surface waters without a National Pollutant Discharge Elimination System (NPDES) permit (40 CFR §122.26). However, NPDES permit coverage is not required for discharges of storm water associated with industrial activities identified at 40 CFR §122.26(b)(14)(i) - (ix) and (xi) if the discharger can certify that a condition of "no exposure" exists at the industrial facility or site.

Storm water discharges from construction activities identified in 40 CFR §122.26(b)(14)(x) and (b)(15) are not eligible for the no exposure exclusion.

Criteria for Qualifying for No Exposure Certification

A condition of no exposure exists at an industrial facility when all industrial materials and activities are protected by a storm resistant shelter to prevent exposure to precipitation including but not limited to rain, snow, sleet, hail or thawing precipitation (e.g., snowmelt). Measures must be in place to prevent storm water run-off from entering the storm resistant shelter. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product. Practices must prevent tracking of materials outside storm resistant shelters. A storm resistant shelter is conditionally not required for the following industrial materials and activities:

- Drums, barrels, buckets, pales, and similar containers that are tightly sealed, provided those containers are not deteriorated and do not leak. Precipitation must not contact product or residue thereof on the exterior of the container or tank. Precipitation collected in secondary containment devices or structures must be properly managed.
- Solid waste dumpsters that are completely closed and not leaking.
- Adequately maintained vehicles used in material handling, transportation, and fleets.
- Final products, other than products that would be mobilized in storm water discharges (e.g., wood chips, rock salt, etc.).

Obtaining and Maintaining the No Exposure Exclusion

This form is used to certify that a condition of no exposure exists at the industrial facility or site described herein. This certification must be re-submitted at least once every five years.

The industrial facility operator must maintain a condition of no exposure at its facility or site in order for the no exposure exclusion to remain applicable. If conditions change resulting in the exposure of materials and activities to storm water, the facility operator must obtain coverage under an NPDES storm water permit immediately.

Where to File This Form

Mail the original form to the appropriate DEQ regional office. See attached map and address list for the office in your area.

In addition, upon request, a copy of this form must be sent to the operator (i.e., local municipality) of the municipal separate storm sewer system if storm water run-off from your facility is discharged to such a system.

Completing the Form

One form must be completed for each facility or site for which you are seeking to certify a condition of no exposure. Additional guidance on completing this form can be accessed through EPA's web site at <http://cfpub.epa.gov/npdes/stormwater/exposure.cfm>. Please make sure you have addressed all applicable questions and have made a photocopy for your records before sending the completed form to the address above.

Section A. Facility Operator Information

1. Provide the legal name of the person, firm, public organization, or any other entity that operates the facility or site described in this certification. The name of the operator may or may not be the same as the name of the facility. The operator is the legal entity that controls the facility's operation, rather than the plant or site manager.
2. Provide the telephone number of the facility operator.
3. Provide the e-mail address of the facility operator
4. Provide the mailing address of the operator (P.O. Box numbers may be used). Include the city, state, and zip code. All correspondence will be sent to this address.

Section B. Facility/Site Location Information

1. Enter the official or legal name of the facility or site.
2. Enter the complete street address (if no street address exists, provide a geographic description [e.g., Intersection of Routes 9 and 55]), city, county; state, and zip code. Do not use a P.O. Box number.
3. Indicate whether the industrial facility is operated by a department or agency of the Federal Government (see also Section 313 of the Clean Water Act).



Instructions for the NO EXPOSURE CERTIFICATION

continued

4. Indicate whether the facility was previously covered under an NPDES storm water permit. If so, include the permit number.
5. Enter the 4-digit SIC code that identifies the facility's primary activity, and, if applicable, second 4-digit SIC code identifying the facility's secondary activity. SIC codes can be obtained from the *Standard Industrial Classification Manual, 1987* or from <http://www.osha.gov/cgi-bin/sic/sicsr5>.
6. Enter the total size of the site associated with industrial activity in acres. Acreage may be determined by dividing square footage by 43,560, as demonstrated in the following example.
Example: Convert 54,450 ft² to acres
Divide 54,450 ft² by 43,560 square feet per acre:
 $54,450 \text{ ft}^2 \div 43,560 \text{ ft}^2/\text{acre} = 1.25 \text{ acres}$.
7. Check "Yes" or "No" as appropriate to indicate whether you have paved or roofed over a formerly exposed, pervious area (i.e., lawn, meadow, dirt or gravel mad/parking lot) in order to qualify for no exposure. If yes, also indicate approximately how much area was paved or roofed over and is now impervious area.
8. Indicate which vehicle-related activities occur at your facility. Check all of the boxes that apply.

Section C. Exposure Checklist

Check "Yes" or "No" as appropriate to describe the exposure conditions at your facility. If you answer "Yes" to ANY of the questions (1) through (11) in this section, a potential for exposure exists at your site and you cannot certify to a condition of no exposure. You must obtain (or already have) coverage under an NPDES storm water permit. After obtaining permit coverage, you can institute modifications to eliminate the potential

for a discharge of storm water exposed to industrial activity, and then certify to a condition of no exposure.

Section D. Certification Statement

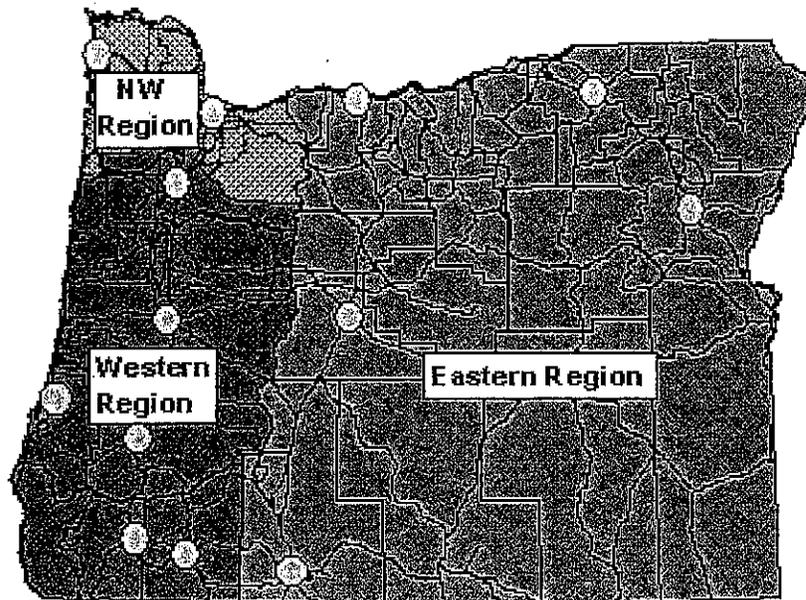
Federal statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:

For a corporation: by a responsible corporate officer, which means:

- (i) president, secretary treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation, or
- (ii) the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

For a partnership or sole proprietorship: by a general partner or the proprietor; or

For a municipal, State, Federal, or other public facility: by either a principal executive or ranking elected official.



Northwest Region

Northwest Region - 503-229-5263
 FAX - 503-229-6945
 2020 SW 4th Ave., #400
 Portland OR 97201

Western Region

Western Region - 541-686-7838
 1102 Lincoln St., Suite 210
 Eugene, OR 97401

Medford Office 541-776-6010
 201 W. Main St., #2-D
 Medford, OR 97501

Salem Office 503-378-8240
 750 Front St. NE, #120
 Salem, OR 97310

Coos Bay Branch Office 541-269-2721
 340 N. Front
 Coos Bay, OR 97420

Grants Pass Branch Office 541-471-2850
 510 NW 4th, Rm. 76
 Grants Pass, OR 97526

Eastern Region

Eastern Region - 541/388-6146
 2146 NE 4th
 Bend OR 97701

Pendleton Office 541-276-4063
 700 SE Emigrant, #330
 Pendleton, OR 97801

Baker City Branch Office 541-523-7998
 2034 Auburn St.
 Baker City, OR 97814

Columbia Gorge Branch Office 541-298-7255
 Columbia Gorge Community College
 400 E. Scenic Dr. Bldg. 2
 The Dalles, OR 97058

Hermiston Office 541-567-8297
 256 East Hurlburt, Suite 117
 Hermiston, OR 97838

Klamath Falls Office 541-883-5603
 PO Box 333
 700 Main Street, Suite 202
 Klamath Falls, OR 97601

RECEIVED

APR 08 2010

Comparison of Old and New 1200-Z Permit Requirements

| Category | Old 1200-Z (expired 6/30/2007) | New 1200-Z (Effective 7/1/2007) |
|--|--|--|
| Benchmark Exceedances | Review and update the Storm Water Pollution Control Plan (SWPCP). | Within 30 days of receiving the results of a benchmark exceedance, submit Action Plan that contains (1) results of review, (2) a corrective action, (3) and an implementation schedule. |
| Sampling | Sampling 2 times per year. | Sampling 4 times per year |
| | Collected samples must be at least 60 days apart. | Collected samples must be at least 14 days apart. |
| Time or flow-weighted composite samples | No allowance for time or flow-weighted composite sampling for grab samples. | Time or flow-weighted composite samples can be used except for pH, oil & grease, and e.coli as an alternative to grab samples. |
| Monitoring Period | One sample collected between October 1 st and December 31 st and one sample collected between January 1 st and April 30 th . | Two samples collected between July 1 st and December 31 st and two samples collected between January 1 st and June 30 th . |
| Employee Training | Develop an employee education program. Inform employees on the elements of the SWPCP, including spill response and good housekeeping. | Hold training within 30 days of hiring new employee who will conduct duties related to implementing the SWPCP or working in areas where stormwater is exposed to industrial activities. Conduct education program annually. |
| Monthly Inspections | Monthly inspections of areas where potential spills of significant materials or industrial activities occur. May occur during any weather. | Same. |
| | Monthly inspections of stormwater control measures, structures, catch basins, and treatment facilities. | Same. |
| Visual Monitoring | Monthly visual monitoring for (1) oil and grease, and (2) floating solids at all outfall(s) or discharge point(s) where stormwater monitoring will occur. Must occur while discharging stormwater, i.e. when it is raining. | Same. |
| Documentation | Records of inspection, maintenance and repair, education activities, and any spills. | Same. |
| Monitoring Waiver | Monitoring waiver can be obtained for individual parameters after four consecutive samples collected are at or below the benchmark | Limited to one permit term. Re-sample designated sampling points to establish the waiver. |
| | ALL outfalls must be sampled unless (1) outfall serves area with no exposure to industrial activity or (2) outfall has similar effluents as other monitored outfalls. Data or analysis must be provided to support this determination. | ALL outfalls must be sampled unless (1) outfall serves an area with no exposure to industrial activity or (2) outfall has similar effluents and <i>same</i> BMPs as other monitored outfalls. Data or analysis must be provided to support this determination. |
| | No monitoring waiver for visual observations | Same. |
| Data Submittal | Submit annual reports and laboratory results sheets to the DEQ by July 15 th . | Submit Discharge Monitoring Report form (DMR) along with laboratory results sheets to DEQ or Agent by July 31 st . |
| | | In the 4 th year only, report in DMR the highest geometric mean of last four monitoring results for each benchmark parameter at each outfall. |
| Authorization of Non-Stormwater | No authorization for non-stormwater discharges in permit | Authorization for certain discharges such as fire-fighting activities, fire hydrants, potable water, irrigation drainage, landscape watering. |



COPY

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GENERAL PERMIT
 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
 STORM WATER DISCHARGE PERMIT

RECEIVED

Department of Environmental Quality
 811 S.W. Sixth Avenue, Portland, OR 97204
 Telephone: (503) 229-5630 or 1-800-452-4011 toll free in Oregon
 Issued pursuant to ORS 468B.050 and The Federal Clean Water Act

APR 08 2010

ISSUED TO: 107274

Coos County Airport District
 PO Box F
 North Bend, OR 97459-0022

Date Issued: 11/24/2009

Coos County
 EPA No: ORR80-1006
 RM: 7.9000000000000004
 LLID: 1243397433543

Site Location: Southwest Regional Airport, Municipal Airport off Colorado Ave, North Bend

SOURCES THAT ARE REQUIRED TO OBTAIN COVERAGE UNDER THIS PERMIT

Pursuant to 40 Code of Federal Regulation (CFR) § 122.26(b)(14)(i - ix, xi) and OAR 340-045-0033(5), facilities identified in *Table 1: Sources Covered* on p. 3 below that may discharge stormwater from a point source to surface waters or to conveyance systems that discharge to surface waters. These facilities must complete the application and registration procedures to obtain coverage under the permit; see *Permit Coverage and Exclusion from Coverage* on p. 5 below.

Note:

- 1) Facilities may apply for conditional exclusion from the requirement to register for coverage under this permit if there is no exposure of industrial activities and materials to stormwater pursuant to 40 CFR § 122.26(g); see *Permit Coverage and Exclusion from Coverage* on p. 5 below.
- 2) Sources meeting the description above, but that are excluded from this permit include: (i) Construction activities, asphalt mix batch plants, concrete batch plants and Standard Industrial Classification code 14, *Mining and Quarrying of Nonmetallic Minerals, Except Fuels*. These activities are regulated under separate general permits; and (ii) any source that has obtained a individual NPDES permit for the discharge.



Date: August 23, 2006

Lauri Aunan, Administrator
 Water Quality Division

PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the permit registrant is authorized to construct, install, modify, or operate stormwater treatment or control facilities, and to discharge stormwater to public waters in conformance with all the requirements, limitations, and conditions set forth in the attached schedules as follows:

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| | <u>Page</u> |
|--|-------------|
| Permit Coverage and Exclusion From Coverage | 5 |
| Schedule A - Stormwater Pollution Control Plan, Additional Requirements, Limitations, and Benchmarks..... | 8 |
| Schedule B - Monitoring and Reporting Requirements 15 | |
| Schedule C - Compliance Conditions and Schedules 18 | |
| Schedule D - Special Conditions 20 | |
| Schedule F - General Conditions 22 | |

Unless specifically authorized by this permit, by regulation issued by EPA, by another NPDES or WPCF permit, or by Oregon Administrative Rule, any other direct or indirect discharge to waters of the state is prohibited, including discharges to an underground injection control system.

Schedule F contains General Conditions that are included in all general permits issued by DEQ. Should conflicts arise between Schedule F and any other schedule of the permit, the requirements in Schedule F will not apply.



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TABLE 1: SOURCES COVERED**Types of Industrial Sources required to obtain coverage under this permit.**

| |
|---|
| <p>Facilities with the following primary Standard Industrial Classification (SIC) codes:</p> <ul style="list-style-type: none"> 10 Metal Mining 12 Coal Mining 13 Oil and Gas Extraction 20 Food and Kindred Products 21 Tobacco Products 22 Textile Mill Products 23 Apparel and Other Finished Products Made From Fabrics and Similar Material 24 Lumber and Wood Products, Except Furniture and 2491 Wood Preserving. (Activities with SIC 2411 Logging that are defined in 40 CFR §122.27 as silvicultural point source discharges are covered by this permit.) 25 Furniture and Fixtures 26 Paper and Allied Products 27 Printing, Publishing and Allied Industries 28 Chemicals and Allied Products (excluding 2874 Phosphate Fertilizer Manufacturing) 29 Petroleum Refining and Related Industries 30 Rubber and Miscellaneous Plastics Products 31 Leather and Leather Products 32 Stone, Clay, Glass, and Concrete Products 33 Primary Metal Industries 34 Fabricated Metal Products, Except Machinery and Transportation Equipment 35 Industrial and Commercial Machinery and Computer Equipment 36 Electronic and Other Electrical Equipment and Components, Except Computer Equipment 37 Transportation Equipment 38 Measuring, Analyzing, and Controlling Instruments; Photographic, Medical and Optical Goods; Watches and Clocks 39 Miscellaneous Manufacturing Industries 4221 Farm Product Warehousing and Storage 4222 Refrigerated Warehousing and Storage 4225 General Warehousing and Storage 5015 Motor Vehicle Parts, Used 5093 Scrap and Waste Materials |
| <p>Facilities with the following primary SIC codes that have vehicle maintenance shops (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, or airport deicing operations:</p> <ul style="list-style-type: none"> 40 Railroad Transportation 41 Local and Suburban Transit and Interurban Highway Passenger Transportation 42 Motor Freight Transportation and Warehousing (excluding 4221 Farm Product Warehousing and Storage, 4222 Refrigerated Warehousing and Storage, and 4225 General Warehousing and Storage) 43 United States Postal Service 44 Water Transportation 45 Transportation by Air 5171 Petroleum Bulk Stations and Terminals, except as provided in Note 1 below. |
| <p>Facilities storing, transferring, formulating, or packaging bulk petroleum products or vegetable oils, except as provided in Note 1 below.</p> |
| <p>Steam Electric Power Generation including coal handling sites</p> |
| <p>Landfills, land application sites and open dumps (excluding landfills regulated by 40 CFR §445 that discharge "contaminated stormwater" (as defined by 40 CFR §445.2) to waters of the U.S.)</p> |
| <p>Hazardous Waste Treatment, Storage and Disposal Facilities [excluding hazardous waste landfills regulated by 40 CFR §445 that discharge "contaminated stormwater" (as defined by 40 CFR §445.2) to waters of the U.S.]</p> |

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TABLE 1: SOURCES COVERED**Types of Industrial Sources required to obtain coverage under this permit.**

Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage, recycling, and reclamation of municipal or domestic sewage (including land dedicated to the disposal of sewage sludge that are located within the confines of the facility) with the design flow capacity of 1.0 mgd or more, or required to have a pretreatment program under 40 CFR §403.

Note 1:

Permit registration is not required for a facility covered in Table 1 if discharges are only from:

- a) Stormwater that contacts oil-filled electrical equipment in transformer substations that are equipped with properly functioning oil spill prevention measures such as containment areas or oil/water separators.
- b) Stormwater that contacts petroleum product receiving or dispensing areas or product dispensing equipment from which product is dispensed to final users, whether or not the stormwater is treated by an oil/water separator.
- c) Stormwater that collects in a secondary containment area at a petroleum product dispensing site, where the secondary containment area is associated with storage tanks from which product is dispensed only to final users, and the discharge from the containment area is treated by an oil/water separator.
- d) Stormwater that collects in a secondary containment area at a bulk petroleum product storage site, where the total storage capacity at the site does not exceed 150,000 gallons, and the discharge from the containment area is treated by an oil/water separator. A site with multiple containment areas is considered a single site for determining total storage capacity.

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PERMIT COVERAGE AND EXCLUSION FROM COVERAGE

1) New Application for Permit Coverage

- a) An owner or operator of a new facility or existing facility that is required to be covered under this permit must:
 - i) *New facility* - Submit a complete application, which includes a department-approved application form; a Stormwater Pollution Control Plan (SWPCP); and applicable permit fees, to the department or agent at least 60 calendar days before the planned activity that requires permit coverage, unless otherwise approved by the department or agent (see Schedule D for description of agent). If an agent is receiving the application materials, submit two copies of the SWPCP.
 - ii) *Existing facility operating without coverage under the permit* - Submit a complete application, which includes a department-approved application form; a SWPCP; and applicable permit fees, to the department or agent immediately. If an agent is receiving the application materials, submit two copies of the SWPCP.
 - iii) *Existing facility operating under permit coverage that intends to change industrial processes* - Submit a complete application, which includes a department-approved application form; a SWPCP; and applicable permit fees, to the department or agent at least 60 calendar days before the planned change, unless otherwise approved by the department or agent. If an agent is receiving the application materials, submit two copies of the SWPCP.
- b) Public Review Period on new application and SWPCP*
 - i) The application form and SWPCP are subject to a 14-calendar day public review period before permit registration is granted by the department.
 - ii) The public review period will not begin if the application form or SWPCP are incomplete.
- c) Registration
 - i) The department or agent will notify the applicant in writing if registration is approved or denied. Permit coverage does not begin until the applicant receives written notice from the department or agent that the registration is approved.
 - ii) If registration is denied or the applicant does not wish to be regulated by this permit, the applicant may apply for an individual permit in accordance with OAR 340-045-0030.

2) Renewal Application for Permit Coverage

- a) An owner or operator of a facility registered under the 1200-Z permit that expires on June 30, 2007 must submit a complete renewal application, which includes a department-approved renewal application form; an updated SWPCP, if revisions to the SWPCP are necessary to address changed conditions or meet new permit requirements of this permit; and applicable permit fees, to the department or agent by January 30, 2007 to ensure uninterrupted permit coverage for industrial stormwater discharges. If an updated SWPCP is not submitted, the department will use the existing SWPCP for public notice purposes.
- b) Public Review Period on renewal application and SWPCP*
 - i) The renewal application and SWPCP are subject to a 14-calendar day public review period before permit coverage may be renewed by the department or agent.
 - ii) The public review period will not begin if the renewal application or SWPCP are incomplete.
- c) Registration
 - i) The department or agent will notify the applicant in writing if registration is approved or denied.

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- ii) If registration is denied or the applicant does not wish to be regulated by this permit, the applicant may apply for an individual permit in accordance with OAR 340-045-0030.

* The public review period described in conditions 1.b and 2.b above do not apply to registration applications and accompanying SWPCPs for new or existing facilities that were subject to public notice and comment requirements prior to July 1, 2007.

3. Name Change or Transfer of Permit Coverage

- a) For a name change or transfer of permit coverage between legal entities with no industrial process changes at the site, the owner or operator must submit a complete copy of the department-approved Name Change or Permit Transfer application form; an updated SWPCP, if revisions are necessary to address changed conditions, and applicable fees to the department or agent within 30 calendar days of the name change or planned transfer. If submittal is made to the agent, two copies of the SWPCP are required.
- b) The department or agent will notify the applicant in writing if the transfer is approved or denied. The department will transfer coverage under the permit after the department approves the application.
- c) For a name change or transfer of permit coverage between legal entities that intend to change industrial processes, the owner or operator must submit a new application for coverage under this permit as required in condition 1.a.iii above.

4) "No Exposure" Conditional Exclusion from Permit Coverage

- a) An owner or operator that applies for a "no exposure" conditional exclusion from coverage under this permit must:
 - i) Provide a storm resistant shelter to protect industrial materials and activities from exposure to rain, snow, snow melt, and runoff, except as provided in the Environmental Protection Agency (EPA) *Guidance Manual for Conditional Exclusion from Stormwater Permitting Based on "No Exposure" of Industrial Activities to Stormwater* (EPA 833-B-00-001, June 2000). Storm resistant shelters with unsealed zinc or copper roofing materials are not eligible for the "no exposure" conditional exclusion.
 - ii) Ensure that contaminated soil or materials from previous operations is not exposed.
 - iii) Complete and sign a certification, on a form approved by the department, that there is no stormwater exposure to industrial materials and activities from the entire facility, except as provided in 40 CFR §122.26(g)(2). The EPA *Guidance Manual* (EPA 833-B-00-001) may be used to determine whether the no exposure criteria are met.
 - iv) Submit the signed certification to the department or agent once every five years. If the department or agent does not comment on the "no exposure" certification within 30 days, the "no exposure" conditional exclusion is deemed approved. The department or agent may notify the applicant in writing or by email of its approval. The owner or operator must keep a copy of the certification on site and any notification of approval on site.
 - v) Allow the department or agent to inspect the facility to determine compliance with the "no exposure" conditions, and allow the department or agent to make any "no exposure" inspection reports available to the public upon request.
 - vi) Submit a copy of the "no exposure" certification to the municipal separate storm sewer system (MS4) operator (i.e., local municipality, district), upon their request, if facility discharges through an MS4; and allow inspection and public reporting by the MS4 operator.
- b) Limitations for obtaining or maintaining the exclusion:
 - i) This exclusion is available on a facility-wide basis only, not for individual outfalls.

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- ii) If industrial materials or activities become exposed to rain, snow, snow melt, or runoff, the conditions for this exclusion no longer apply. In such cases, the discharge becomes subject to enforcement for un-permitted discharge. Any conditionally exempt discharger who anticipates changes in circumstances must apply for and obtain permit coverage before the change of circumstances.
 - iii) The department or agent retains the authority to make a determination that the "no exposure" conditional exclusion no longer applies and require the owner or operator to obtain permit coverage.
5. **Revocation of Permit Coverage** - The department may revoke a permit registrant's coverage under the permit pursuant to OAR 340-045-033(10).

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SCHEDULE A STORMWATER POLLUTION CONTROL PLAN

1. **Preparation and Implementation of Stormwater Pollution Control Plan (SWPCP)**
 - a) The permit registrant must ensure that the SWPCP contains the applicable information described in condition A.3.
 - b) The SWPCP must be prepared by a person knowledgeable in stormwater management and familiar with the facility.
 - c) The name of the person(s) preparing the SWPCP must be included in the plan.
 - d) The SWPCP must be signed and certified in accordance with 40 CFR §122.22.
 - e) The SWPCP must be implemented according to conditions A.3.c and Schedule C. Failure to implement any portion of the SWPCP constitutes a violation of the permit.
 - f) The SWPCP must be kept current and updated as necessary to reflect any changes in facility operation.
 - g) A copy of the SWPCP must be kept at the facility and made available upon request to government agencies responsible for stormwater management in the permit registrant's area.

2. **SWPCP Revisions and Actions Plans**
 - a) After the permit registration is approved, if the permit registrant proposes to revise its SWPCP or the department or agent require revisions to the SWPCP, the permit registrant must clearly describe these revisions in an Action Plan.
 - b) The Action Plan is considered an addendum to the SWPCP and must be prepared in compliance with condition A.1 above.
 - c) Within 30 calendar days of making SWPCP revisions, permit registrant must submit an Action Plan to the department or agent for approval. If the department or agent does not comment within 10 business days of receiving the Action Plan, it is deemed approved. Failure to implement any portion of the Action Plan constitutes a violation of the permit.

3. **Required SWPCP Elements**
 - a) **Title Page** - The title page of the SWPCP must contain the following information:
 - i) Name of the site.
 - ii) Name of the site operator or owner.
 - iii) Site or file number as indicated on the permit.
 - iv) Contact person's name and telephone number.
 - v) Physical address, including county, and mailing address if different.

 - b) **Site Description** - The SWPCP must contain the following information:
 - i) A description of the industrial activities conducted at the site. Include a description of the significant materials (see condition D.3, Definitions) that are stored, used, treated or disposed of in a manner that allows exposure to stormwater. Also describe the methods of storage, usage, treatment or disposal.
 - ii) A general location map showing the location of the site in relation to surrounding properties, transportation routes, surface waters and other relevant features.
 - iii) A site map including the following:
 - (1) drainage patterns;
 - (2) drainage and discharge structures (piping, ditches, etc.);
 - (3) outline of the drainage area for each stormwater outfall;
 - (4) paved areas and buildings within each drainage area;

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- (5) areas used for outdoor manufacturing, treatment, storage, or disposal of significant materials;
 - (6) existing structural control measures for reducing pollutants in stormwater runoff;
 - (7) material loading and access areas;
 - (8) hazardous waste treatment, storage and disposal facilities;
 - (9) location of wells including waste injection wells, seepage pits, drywells, etc., and
 - (10) location of springs, wetlands and other surface waterbodies both on site and adjacent to the site.
- iv) Estimates of the amount of impervious surface area (including paved areas and building roofs) relative to the total area drained by each stormwater outfall.
 - v) For each area of the site where a reasonable potential exists for contributing pollutants to stormwater runoff, identify the potential pollutants that could be present in stormwater discharges.
 - vi) The name(s) of the receiving water(s) for stormwater drainage. If drainage is to a municipal storm sewer system, the name(s) of the ultimate receiving waters and the name of the municipality.
 - vii) Identification of the discharge outfall(s) and the point(s) where stormwater monitoring will occur as required by Schedule B. If multiple discharge outfalls exist but will not all be monitored, include a description of the outfalls and data or analysis supporting that the outfalls are representative as described in condition B.2.b.
- c) **Site Controls** - The permit registrant must develop, implement, and maintain the controls that are appropriate for the site. The purpose of these controls is to eliminate or minimize the exposure of pollutants to stormwater or to remove pollutants from stormwater before it discharges to surface waters. In developing a control strategy, the permit registrant must include the following four (4) types of controls in the SWPCP and describe the specific components of each control:
- i) **Stormwater Best Management Practices** - The permit registrant must employ the following types of best management practices that are appropriate for the site. A schedule for implementation of these practices must be included in the SWPCP if the practice has not already been accomplished. This schedule must be consistent with the requirements for implementing the SWPCP in Schedule C of this permit.
 - (1) **Containment** - All hazardous substances (see condition D.3, Definitions) must be stored within berms or other secondary containment devices to prevent leaks and spills from contaminating stormwater. If the use of berms or secondary containment devices is not possible, then hazardous substances must be stored in areas that do not drain to the storm sewer system.
 - (2) **Oil and Grease** - Oil/water separators, booms, skimmers or other methods must be employed to eliminate or minimize oil and grease contamination of stormwater discharges.
 - (3) **Waste Chemicals and Material Disposal** - Wastes must be recycled or properly disposed of in a manner to eliminate or minimize exposure of pollutants to stormwater. All waste contained in bins or dumpsters where there is a potential for drainage of stormwater through the waste must be covered to prevent exposure of stormwater to these pollutants. Acceptable covers include, but are not limited to, storage of bins or dumpsters under roofed areas and use of lids or temporary covers such as tarps.
 - (4) **Erosion and Sediment Control** - Erosion control methods such as vegetating exposed areas, graveling or paving must be employed to minimize erosion of soil at the site.

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Sediment control methods such as detention facilities, vegetated filter strips, bioswales, or other permanent erosion or sediment controls must be employed to minimize sediment loads in stormwater discharges. For activities that involve land disturbance, the permit registrant must contact the local municipality to determine if there are other applicable requirements.

- (5) Debris Control - Screens, booms, settling ponds, or other methods must be employed to eliminate or minimize debris in stormwater discharges.
 - (6) Stormwater Diversion - Stormwater must be diverted away from fueling, manufacturing, treatment, storage, and disposal areas to prevent exposure of uncontaminated stormwater to potential pollutants.
 - (7) Covering Activities - Fixed fueling, manufacturing, treatment, storage, and disposal areas must be covered to prevent exposure of stormwater to potential pollutants. Acceptable covers include, but are not limited to, permanent structures such as roofs or buildings and temporary covers such as tarps.
 - (8) Housekeeping - Areas that may contribute pollutants to stormwater must be kept clean. Sweeping, litter pick-up, prompt clean up of spills and leaks, and proper maintenance of vehicles must be employed to eliminate or minimize exposure of stormwater to pollutants.
- ii) *Spill Prevention and Response Procedure* - Permit registrant must include in the SWPCP methods to prevent spills along with clean-up and notification procedures. These methods and procedures must be made available to appropriate personnel. The required clean-up material must be on-site or readily available and the location of materials must either be shown on the site drawings or indicated in the text of the SWPCP. Spills prevention plans required by other regulations may be substituted for this provision providing that stormwater management concerns are adequately addressed.
- iii) *Preventative Maintenance* - Permit registrant must include in the SWPCP a preventative maintenance program to ensure the effective operation of all stormwater best management practices. At a minimum the program must include:
- (1) Monthly inspections of areas where potential spills of significant materials or industrial activities could impact stormwater runoff.
 - (2) Monthly inspections of stormwater control measures, structures, catch basins, and treatment facilities.
 - (3) Cleaning, maintenance or repair of all materials handling and storage areas and all stormwater control measures, structures, catch basins, and treatment facilities as needed upon discovery. Cleaning, maintenance, and repair of such systems must be performed in such a manner as to prevent the discharge of pollution.
- iv) *Employee Education* - Permit registrant must develop and maintain an employee orientation and education program to inform personnel of the components and goals of the SWPCP. The program must also address spill response procedures and the necessity of good housekeeping practices. A schedule for employee education must be included in the SWPCP. The education and training must occur within 30 calendar days of hiring an employee who works in areas where stormwater is exposed to industrial activities or conducts duties related to the implementation of the SWPCP, and annually thereafter.

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- d) **Record Keeping and Internal Reporting Procedures** - Permit registrant must record and maintain at the facility the following information, which does not need to be submitted to the department, agent or other government agencies, unless it is requested.
- i) Inspection, maintenance, repair and education activities as required by the SWPCP.
 - ii) Spills or leaks of significant materials (See condition D.3, Definitions) that impacted or had the potential to impact stormwater or surface waters. Include the corrective actions to clean up the spill or leak as well as measures to prevent future problems of the same nature.

ADDITIONAL REQUIREMENTS

4. Non-Stormwater Discharges

- a) The following non-stormwater discharges are authorized by this permit:
 - i) Discharges from fire-fighting activities.
 - ii) Fire hydrant flushings.
 - iii) Potable water, including water line flushings.
 - iv) Uncontaminated air conditioning condensate.
 - v) Irrigation drainage.
 - vi) Landscape watering, provided that all pesticides, herbicides, and fertilizer have been applied in accordance with manufacturer's instructions.
 - vii) Pavement wash waters where no detergents or hot water are used, no spills or leaks of toxic or hazardous materials have occurred (unless all spilled material has been removed), and surfaces are swept before washing.
 - viii) Routine external building washdown that does not use detergents or hot water.
 - ix) Uncontaminated ground water or spring water.
 - x) Foundation or footing drains where flows are not contaminated with process materials.
 - xi) Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of the facility, but not intentional discharges from the cooling tower (e.g., "piped" cooling tower blowdown or drains).
- b) Piping and drainage systems for interior floor drains and process wastewater discharge points must be separated from the storm drainage system to prevent inadvertent discharge of pollutants to waters of the state. Discharge from floor drains to the stormwater drainage system is a violation of this permit.
- c) Any other wastewater discharge or disposal, including stormwater mixed with wastewater, must be permitted in a separate permit, unless the wastewater is reused or recycled without discharge or disposal, or discharged to the sanitary sewer with approval from the local sanitary authority.

5. Water Quality Standards

- a) The permit registrant must not cause a violation of instream water quality standards as established in OAR 340-041.
- b) If the permit registrant develops, implements, and revises its SWPCP in compliance with Schedule A of this permit, the department presumes that the discharges authorized by this permit will comply with instream water quality standards unless the department obtains evidence to the contrary. Coincident samples of the discharge and at upstream and downstream locations in the receiving waterbody must be collected to establish a violation of an instream water quality standard is caused by the discharge.
- c) In instances where the department determines that the permit registrant's stormwater discharges are not complying with instream water quality standards, the department may take

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enforcement action for violations of the permit and will require the permit registrant to do one or more of the following:

- i) Develop and implement an Action Plan that describes additional effective BMPs to address the parameters of concern and their locations at the site;
- ii) Submit valid and verifiable data and information that are representative of ambient conditions and indicate that the receiving water is meeting water quality standards; or
- iii) Curtail stormwater pollutant discharges to the extent possible and submit an individual permit application.

6. **Discharges to Impaired Waterbodies** - If a Total Maximum Daily Load (TMDL) Order (see condition D.3, Definitions) is established and the discharge from a permitted source is assigned a waste load allocation or is required to meet other conditions in the TMDL Order, then an application for an individual or different general permit or other appropriate tools may be required to address the allocation or other requirements.

CODE OF FEDERAL REGULATION STORMWATER DISCHARGE LIMITATIONS

7. **Effluent Limitations** - The permit registrant with the following activities must comply with the applicable limitations:

| CFR Industry | | Parameter | Limitation | |
|---|---|------------------------------|------------------------|-------------------------|
| Category | Subcategory | | | |
| Cement manufacturing (40 CFR §411) | Materials storage piles runoff | pH | 6.0 - 9.0 SU | |
| | | Total Suspended Solids (TSS) | 50 mg/l | |
| Steam powered electric power generating (40 CFR §423) | Coal pile runoff | TSS | 50 mg/l, Daily Maximum | |
| Paving and roofing materials (tars and asphalt) (40 CFR §443) | Runoff from manufacturing of asphalt paving or roofing emulsion | Oil & Grease | 15 mg/l, Daily Maximum | 10 mg/l, 30 Day Average |
| | | pH | 6.0 - 9.0 SU | |

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STORMWATER DISCHARGE BENCHMARKS

8. **Benchmarks** - Benchmarks are guideline concentrations, not limitations. They are designed to assist the permit registrant in determining whether their SWPCP is effectively reducing pollutant concentrations in stormwater discharged from the site. For facilities that are subject to federal limitations, benchmarks apply to only those pollutants that are not limited by the federal regulations. See condition A.7 for a list of facilities subject to federal limitations.

The following benchmarks apply to each point source discharge of stormwater associated with industrial activity:

| Parameter | Benchmark |
|---|----------------------|
| Total Copper | 0.1 mg/l |
| Total Lead | 0.4 mg/l |
| Total Zinc | 0.6 mg/l |
| pH* | 5.5 – 9.0 SU |
| Total Suspended Solids* | 130 mg/l |
| Total Oil & Grease* | 10 mg/l |
| E. coli** | 406 counts/100 ml |
| Floating Solids (associated with industrial activities) | No Visible Discharge |
| Oil & Grease Sheen | No Visible Sheen |

* See condition A.7 for list of facilities subject to federal limitations.

**The benchmark for E. coli applies only to landfills, if septage and sewage biosolids are disposed at the site, and sewage treatment plants.

9. Response to a Benchmark Exceedance

- a) If a stormwater sampling result exceeds any of the benchmark values, the permit registrant must, within 30 calendar days of receiving the sampling results, investigate the cause of the elevated pollutant levels, review the SWPCP and submit an Action Plan for department or agent approval.
- b) The purpose of this review is to determine if:
 - i) The SWPCP is being followed;
 - ii) There are alternative methods for implementing the existing site controls identified in the SWPCP;
 - iii) The benchmark exceedance resulted from background or natural conditions not associated with industrial activities at the site; and
 - iv) Additional effective site controls are needed to address the parameters of concern.
- c) The Action Plan must contain the following, unless condition A.9.d applies:
 - i) The results of the review;
 - ii) The corrective actions the permit registrant will take to address the benchmark exceedance; and
 - iii) An implementation schedule including alternative methods for implementing existing site controls or methods for implementing additional effective site controls, if the site controls have not already been implemented.

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- d) If the permit registrant believes that the benchmark exceedance resulted from natural or background conditions, the Action Plan must propose a sampling plan and methodology for demonstrating that the elevated pollutant levels are due to background or natural conditions.
- e) If the department or agent does not comment on the Action Plan within 10 business days of its receipt, it is deemed approved. The department or agent's approval of the Action Plan does not constitute compliance with this permit.
- f) Upon approval, the permit registrant must implement the corrective actions identified in the Action Plan within 60 calendar days, unless otherwise approved by the department or agent.
- g) If the department or agent affirms the assertion that background or natural conditions contributed to the benchmark exceedance, the permit registrant is not required to make this demonstration again during the term of this permit.

10. Benchmark Compliance Evaluation

- a) By June 30th of the 4th year of permit coverage, the permit registrant must evaluate the last four samples collected from each outfall monitored and determine whether the geometric mean of the samples exceeds benchmark(s). This condition is not applicable to a permit registrant with a monitoring waiver as described in condition B.3.
- b) The permit registrant must report this information in a Discharge Monitoring Report (DMR) and submit the DMR to the department or agent by July 31st of the 4th year of permit coverage as described in condition B.4.a.
- c) If the geometric mean of the samples exceeds benchmark(s), the department will revoke the permit registrant's coverage under this permit and will require the permit registrant to apply for an individual permit pursuant to OAR 340-045-0033(10) and OAR 340-045-0060.

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SCHEDULE B
MONITORING AND REPORTING REQUIREMENTS

1. **Minimum Monitoring Requirements** - All permit registrants must monitor stormwater associated with industrial activity for the following:

| GRAB SAMPLES OF STORMWATER | |
|-----------------------------------|---------------------|
| Parameter | Frequency* |
| Total Copper | Four times per Year |
| Total Lead | Four times per Year |
| Total Zinc | Four times per Year |
| pH | Four times per Year |
| Total Suspended Solids | Four times per Year |
| Total Oil & Grease | Four times per Year |
| E. coli*** | Four times per Year |

* For each outfall monitored, the permit registrant may collect a single grab sample or a series of equal volume grab samples. Samples must be collected from the same storm event.

** The permit registrant is allowed to collect more samples than the minimum frequency requires and must report this data.

***The monitoring for E. coli applies only to landfills, if septage and sewage biosolids are disposed at the site, and sewage treatment plants.

| VISUAL MONITORING OF STORMWATER | |
|---|-----------------------------------|
| Parameter | Frequency |
| Floating Solids (associated with industrial activities) | Once per Month (when discharging) |
| Oil & Grease Sheen | Once per Month (when discharging) |

2. **Grab Sampling and Visual Monitoring Procedures and Locations** - The following requirements apply to monitoring conducted in compliance with condition B.1 above.
- a) **Grab Sampling and Visual Monitoring Methodology** - The monitoring period is from July 1 to June 30th. Grab samples must be representative of the discharge and must be taken at least 14 calendar days apart. Two samples must be collected before December 31, and two samples must be collected after January 1. Time or flow-weighted compositing of samples may be used as an alternative to grab samples, except when monitoring for pH, oil and grease, and E. coli. Visual monitoring must occur at outfall(s) or discharge point(s) identified in the SWPCP as outfall(s) or point(s) where stormwater monitoring will occur.
- b) **Multiple Point Source Discharges** - Each stormwater outfall must be monitored unless:
- i) The outfall serves an area with no exposure of stormwater to industrial activities; or
 - ii) The outfall has effluent that is substantially similar to the effluent(s) of a monitored outfall and the same BMPs are implemented and maintained at the similar outfalls or drainage areas that lead to the outfalls. Substantially similar effluent(s) are discharges from drainage areas serving comparable activities where the discharges are expected to be similar in composition. The determination of substantial similarity or effluent(s)

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must be based on past monitoring or an analysis of industrial activities and site characteristics. The data or analysis supporting that the outfalls are representative must be included in the SWPCP as described in A.3.b.vii.

- iii) If sampling points are modified, permit registrants must notify the department or agent and submit an Action Plan as described in condition A.2.c.
 - c) **Monitoring Location** - All samples must be taken at monitoring points specified in the SWPCP before the stormwater joins or is diluted by any other wastestream, body of water or substance, unless otherwise approved in writing by the department.
 - d) **Sampling Variance**
 - i) Permit registrants may request a sampling variance for missed samples if one of the following criteria is met:
 - a) State or federal authorities declared the year a drought year.
 - b) Demonstrate that rainfall in the area where the permit registrant's facility is located was 20% or more below the three-year average rainfall for that area.
 - c) Demonstrate to the department or agent's satisfaction that samples were unable to be collected due to the infrequency of storm events of sufficient magnitude to produce run-off. Supporting data and analysis must be submitted to the department or agent.
 - ii) Permit registrants must submit to the department or agent a written request for a sampling variance by July 31st of the monitoring year in which the missed sampling occurred.
3. **Monitoring Waiver**
- a) **Visual Observations** - There is no reduction allowed of the required visual observations.
 - b) **Grab Samples** - If at least four consecutive sampling results meet the benchmarks specified in condition A.8, the permit registrant is not required to collect grab samples for the remainder of the permit term. Where the permit registrant demonstrates to the department or agent's satisfaction that a benchmark exceedance resulted from background or natural conditions as described in condition A.9, the department or agent will consider these samples as meeting the benchmark(s) for the purposes of granting a monitoring waiver. There is no reduction in monitoring allowed for facilities subject to CFR limitations as described in condition A.7.
 - i) Results from sampling events cannot be averaged to meet the benchmarks.
 - ii) Monitoring waivers may be allowed for individual parameters.
 - iii) The permit registrant must submit to the department or agent a request to exercise the monitoring waiver that includes the analytical results from the four sampling events. If the department or agent does not comment within 30 calendar days, the monitoring waiver is deemed approved.
 - c) **Revocation of Monitoring Waiver**
 - i) The permit registrant must conduct monitoring as specified in condition B.1 if:
 - a) The department or agent determines that prior monitoring efforts used to establish the monitoring waiver were improper or sampling results were incorrect;
 - b) The department, agent or permit registrant determines that changes to site conditions are likely to affect stormwater discharge characteristics, or
 - c) The department, agent or permit registrant conducts additional monitoring and the sampling results exceed benchmark(s).

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- ii) The department or agent will notify the permit registrant in writing if the monitoring waiver is revoked.

4. **Monitoring Reporting Requirements** - The permit registrant must submit the following to the appropriate DEQ regional office or agent:

- a) **Monitoring Data** - The permit registrant must submit by July 31st of each year grab sampling and visual monitoring results for the previous monitoring period (July 1- June 30). The permit registrant must also report the minimum detection levels and analytical methods for the parameters analyzed. Non-detections must be reported as "ND" with the detection limit in mg/L parentheses, e.g., ND (0.005 mg/L). In calculating the geometric mean as described in condition A.10, one-half of the detection limits must be used for non-detections.
- b) **Report Forms** - The permit registrant must use a department-approved Discharge Monitoring Report (DMR) form for both visual and analytical monitoring results.

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**SCHEDULE C
COMPLIANCE CONDITIONS AND SCHEDULES**

1. **An Existing Permit Registrant** that is either renewing or transferring coverage under the permit where there are no changes to operation or industrial type (for a facility operating under an NPDES stormwater discharge permit prior to July 1, 2007):
 - a) Not later than 90 calendar days after renewing or transferring coverage under the permit, permit registrant must implement new site controls identified in the SWPCP to meet new permit requirements.
 - b) Site controls that are developed to meet new permit requirements that require capital improvements (see Schedule D.3, Definitions) must be completed in accordance with the schedule set forth in the SWPCP, but must be completed within two years of renewing or transferring coverage under this permit.
2. **A New Permit Registrant with an Existing Facility** (for a facility operating before July 1, 2007, without an NPDES stormwater discharge permit):
 - a) Not later than 90 calendar days after obtaining permit coverage, the permit registrant must implement site controls identified in the SWPCP to meet the new permit requirements.
 - b) Site controls that are developed to meet new permit requirements that require capital improvements (see Schedule D.3, Definitions) must be completed in accordance with the schedule set forth in the SWPCP, but must be completed within two years of obtaining permit coverage.
3. **A New Permit Registrant with a New Facility** (for a facility beginning operation after July 1, 2007 without an NPDES stormwater discharge permit):
 - a) A permit registrant must begin implementation of the SWPCP before starting operations. Not later than 90 calendar days after obtaining permit coverage, the permit registrant must fully implement site controls identified in the SWPCP.
 - b) Site controls that require capital improvements (see Schedule D.3, Definitions), must be completed in accordance with the schedule set forth in the SWPCP, but must be completed within two years of obtaining permit coverage.
4. **A New Permit Registrant Discharging to Clackamas River, McKenzie River above Hayden Bridge (River Mile 15) or North Santiam River** (For potential or existing dischargers that did not have a permit prior to January 28, 1994, and existing dischargers that have a NPDES stormwater discharge permit but request an increased load limitation.)
 - a) Not later than 180 calendar days after obtaining permit coverage, permit registrant must submit to the department a monitoring and water quality evaluation program. This program must be effective in evaluating the in-stream impacts of the discharge as required by OAR 340-041-0470.

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- b) Within 30 calendar days of department approval, the permit registrant must implement the monitoring and water quality evaluation program.

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SCHEDULE D SPECIAL CONDITIONS

1. **Releases in Excess of Reportable Quantities.** This permit does not relieve the permit registrant of the reporting requirements of 40 CFR §117 Determination of Reportable Quantities for Hazardous Substances and 40 CFR §302 Designation, Reportable Quantities, and Notification.
2. **Availability of SWPCP and Monitoring Data.** The Stormwater Pollution Control Plan (SWPCP) or stormwater monitoring data must be made available to government agencies responsible for stormwater management in the permit registrant's area.
3. **Definitions**
 - a) *Action Plan* means an addendum to the SWPCP developed in response to modification to the SWPCP or in response to a benchmark exceedance.
 - b) *Capital Improvements* means the following improvements that require capital expenditures:
 - i) Treatment best management practices including but not limited to settling basins, oil/water separation equipment, catch basins, grassy swales, detention/retention basins, and media filtration devices.
 - ii) Manufacturing modifications that incur capital expenditures, including process changes for reduction of pollutants or wastes at the source.
 - iii) Concrete pads, dikes and conveyance or pumping systems utilized for collection and transfer of stormwater to treatment systems.
 - iv) Roofs and appropriate covers for manufacturing areas.
 - c) *Hazardous Substances* as defined in 40 CFR §302 Designation, Reportable Quantities, and Notification.
 - d) *Material Handling Activities* include the storage, loading and unloading, transportation or conveyance of raw material, intermediate product, finished product, by-product or waste product.
 - e) *Point Source Discharge* means a discharge from any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, or conduit.
 - f) *Significant Materials* includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical that a facility is required to report pursuant to section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ash, slag, and sludge that have the potential to be released with stormwater discharges.
 - g) *Site Controls* is analogous to Best Management Practices.
 - h) *Stormwater Associated With Industrial Activity* includes, but is not limited to, stormwater discharges from the following:
 - Industrial plant yards

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- Immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility
- Material handling sites (Material handling activities include the storage, loading and unloading, transportation or conveyance of raw material, intermediate product, finished product, by-product or waste product.)
- Refuse sites
- Sites used for the application or disposal of process waste waters (as defined in 40 CFR § 401)
- Sites used for storage or maintenance of material handling equipment
- Sites used for residual treatment, storage, or disposal; shipping and receiving areas
- Manufacturing buildings
- Storage areas (including tank farms) for raw materials, and intermediate and finished products
- Areas where industrial activity has taken place in the past and significant materials remain and are exposed to stormwater. Significant materials includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical that a facility is required to report pursuant to section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ash, slag, and sludge that have the potential to be released with stormwater discharges.

- i) *Stormwater Conveyance* means a sewer, ditch, or swale that is designed to carry stormwater; a stormwater conveyance may also be referred to as a storm drain or storm sewer.
- j) *Total Maximum Daily Load (TMDL)* is the sum of the individual Waste Load Allocations (WLAs) for point sources and Load Allocations (LAs) for nonpoint sources and background. If a receiving water body has only one point source discharger, the TMDL is the sum of that point source WLA plus the LAs for any nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure.

4. **Local Public Agencies Acting as the Department's Agent**

The department authorizes local public agencies to act as its agent in implementing this permit if they entered into a Memorandum of Agreement (MOA). The agent may be authorized to conduct the following activities, including but not limited to: application review and approval, inspections, monitoring data review, stormwater and wastewater monitoring, SWPCP review, and verification and approval of no-exposure certifications. Where the department has entered into such an agreement, the department or its agent must notify the permit registrant of where to submit no-exposure certifications, and other notifications or correspondence associated with this permit. Annual discharge monitoring reports, including analytical monitoring data and visual monitoring results, SWPCPs and Actions Plans must be submitted to both the department and the agent.

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SCHEDULE F NPDES GENERAL CONDITIONS – INDUSTRIAL FACILITIES

SECTION A. STANDARD CONDITIONS

1. Duty to Comply

The permit registrant must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of Oregon Revised Statutes (ORS) 468B.025 and 40 CFR 122.41(a) and is grounds for enforcement action; for permit termination, revocation, reissuance, or modification; or for denial of a permit renewal application.

2. Penalties for Water Pollution and Permit Condition Violations

ORS 468.140 allows the department to impose civil penalties up to \$10,000 per day for violation of a term, condition, or requirement of a permit. Additionally, 40 CFR 122.41, modified by 40 CFR 19.4, provides that any person who violates any permit condition, term, or requirement may be subject to a federal civil penalty not to exceed \$32,500 per day of each violation.

Under ORS 468.943 and 40 CFR 122.41, modified by 40 CFR 19.4, unlawful water pollution, if committed by a person with criminal negligence, is punishable by a fine of up to \$32,500 or by imprisonment for not more than one year, or by both. Each day on which a violation occurs or continues is a separately punishable offense.

Under ORS 468.946, a person who knowingly discharges, places or causes to be placed any waste into the waters of the state or in a location where the waste is likely to escape into the waters of the state, is subject to a Class B felony punishable by a fine not to exceed \$200,000 and up to 10 years in prison. Additionally, under 40 CFR §122.41(a) any person who knowingly discharges, places, or causes to be placed any waste into the waters of the state or in a location where the waste is likely to escape into the waters of the state is subject to a federal civil penalty not to exceed \$100,000, and up to 6 years in prison.

3. Duty to Mitigate

The permit registrant must take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. In addition, upon request of the Department, the permit registrant must correct any adverse impact on the environment or human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.

4. Duty to Reapply

If the permit registrant wishes to continue an activity regulated by this permit after the expiration date of this permit, the permit registrant must apply to have the permit renewed. The application must be submitted at least 180 days before the expiration date of this permit.

The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date.

5. Permit Actions

This permit may be modified, suspended, revoked and reissued, or terminated for cause including, but not limited to, the following:

- a. Violation of any term, condition, or requirement of this permit, a rule, or a statute;
- b. Obtaining this permit by misrepresentation or failure to disclose fully all material facts;
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge;
- d. The permit registrant is identified as a Designated Management Agency or allocated a wasteload under a Total Maximum Daily Load (TMDL);
- e. New information or regulations;
- f. Modification of compliance schedules;
- g. Requirements of permit re-opener conditions;--
- h. Correction of technical mistakes made in determining permit conditions;
- i. Determination that the permitted activity endangers human health or the environment, or
- j. Other causes as specified in 40 CFR §§122.62, 122.64, and 124.5.

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The filing of a request by the permit registrant for a permit modification or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

6. Toxic Pollutants

The permit registrant must comply with any applicable effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

7. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.

8. Permit References

Except for effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and standards for sewage sludge use or disposal established under Section 405(d) of the Clean Water Act, all rules and statutes referred to in this permit are those in effect on the date this permit is issued.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The permit registrant must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permit registrant to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls, and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permit registrant only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Duty to Halt or Reduce Activity

For industrial or commercial facilities, upon reduction, loss, or failure of the treatment facility, the permit registrant must, to the extent necessary to maintain compliance with its permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power of the treatment facility fails or is reduced or lost. It is not a defense for a permit registrant in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Bypass of Treatment Facilities

a. Definitions

- (1) "Bypass" means intentional diversion of waste streams from any portion of the treatment facility. The term "bypass" does not include nonuse of singular or multiple units or processes of a treatment works when the nonuse is insignificant to the quality or quantity of the effluent produced by the treatment works. The term "bypass" does not apply if the diversion does not cause effluent limitations to be exceeded, provided the diversion is to allow essential maintenance to assure efficient operation.
- (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities or treatment processes which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Prohibition of bypass.

(1) Bypass is prohibited unless:

- (a) Bypass was necessary to prevent loss of life, personal injury, or severe property damage;
- (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
- (c) The permit registrant submitted notices and requests as required under General Condition B.3.c.

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- (2) The Director may approve an anticipated bypass, after considering its adverse effects and any alternatives to bypassing, when the Director determines that it will meet the three conditions listed above in General Condition B.3.b.(1).

c. Notice and request for bypass.

- (1) Anticipated bypass. If the permit registrant knows in advance of the need for a bypass, it must submit prior written notice, if possible at least ten days before the date of the bypass.
- (2) Unanticipated bypass. The permit registrant must submit notice of an unanticipated bypass as required in General Condition D.5.

4. Upset

a. Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permit registrant. An upset does not include noncompliance to the extent caused by operation error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of General Condition B.4.c are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions necessary for a demonstration of upset. A permit registrant who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

- (1) An upset occurred and that the permit registrant can identify the causes(s) of the upset;
- (2) The permitted facility was at the time being properly operated;
- (3) The permit registrant submitted notice of the upset as required in General Condition D.5, hereof (24-hour notice); and
- (4) The permit registrant complied with any remedial measures required under General Condition A.3 hereof.

d. Burden of proof. In any enforcement proceeding the permit registrant seeking to establish the occurrence of an upset has the burden of proof.

5. Treatment of Single Operational Event

For purposes of this permit, A Single Operational Event which leads to simultaneous violations of more than one pollutant parameter must be treated as a single violation. A single operational event is an exceptional incident which causes simultaneous, unintentional, unknowing (not the result of a knowing act or omission), temporary noncompliance with more than one Clean Water Act effluent discharge pollutant parameter. A single operational event does not include Clean Water Act violations involving discharge without a NPDES permit or noncompliance to the extent caused by improperly designed or inadequate treatment facilities. Each day of a single operational event is a violation.

6. Overflows from Wastewater Conveyance Systems and Associated Pump Stations

a. Definitions

- (1) "Overflow" means the diversion and discharge of waste streams from any portion of the wastewater conveyance system including pump stations, through a designed overflow device or structure, other than discharges to the wastewater treatment facility.
- (2) "Severe property damage" means substantial physical damage to property, damage to the conveyance system or pump station which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of an overflow.
- (3) "Uncontrolled overflow" means the diversion of waste streams other than through a designed overflow device or structure, for example to overflowing manholes or overflowing into residences, commercial establishments, or industries that may be connected to a conveyance system.

b. Prohibition of overflows. Overflows are prohibited unless:

- (1) Overflows were unavoidable to prevent an uncontrolled overflow, loss of life, personal injury, or severe property damage;
- (2) There were no feasible alternatives to the overflows, such as the use of auxiliary pumping or conveyance systems, or maximization of conveyance system storage; and

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- (3) The overflows are the result of an upset as defined in General Condition B.4. and meeting all requirements of this condition.
- c. Uncontrolled overflows are prohibited where wastewater is likely to escape or be carried into the waters of the State by any means.
- d. Reporting required. Unless otherwise specified in writing by the Department, all overflows and uncontrolled overflows must be reported orally to the Department within 24 hours from the time the permit registrant becomes aware of the overflow. Reporting procedures are described in more detail in General Condition D.5.
7. Public Notification of Effluent Violation or Overflow
If effluent limitations specified in this permit are exceeded or an overflow occurs, upon request by the Department, the permit registrant must take such steps as are necessary to alert the public about the extent and nature of the discharge. Such steps may include, but are not limited to, posting of the river at access points and other places, news releases, and paid announcements on radio and television.
8. Removed Substances
Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters must be disposed of in such a manner as to prevent any pollutant from such materials from entering public waters, causing nuisance conditions, or creating a public health hazard.

SECTION C. MONITORING AND RECORDS

1. Representative Sampling
Sampling and measurements taken as required herein must be representative of the volume and nature of the monitored discharge. All samples must be taken at the monitoring points specified in this permit and must be taken, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points must not be changed without notification to and the approval of the Director.
2. Flow Measurements
Appropriate flow measurement devices and methods consistent with accepted scientific practices must be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices must be installed, calibrated and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected must be capable of measuring flows with a maximum deviation of less than ± 10 percent from true discharge rates throughout the range of expected discharge volumes.
3. Monitoring Procedures
Monitoring must be conducted according to test procedures approved under 40 CFR §136, unless other test procedures have been specified in this permit.
4. Penalties of Tampering
The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit must, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than two years, or by both. If a conviction of a person is for a violation committed after a first conviction of such person, punishment is a fine not more than \$20,000 per day of violation, or by imprisonment of not more than four years or both.
5. Reporting of Monitoring Results
Monitoring results must be summarized each month on a Discharge Monitoring Report form approved by the Department. The reports must be submitted monthly and are to be mailed, delivered or otherwise transmitted by the 15th day of the following month unless specifically approved otherwise in Schedule B of this permit.
6. Additional Monitoring by the Permit registrant
If the permit registrant monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR §136 or as specified in this permit, the results of this monitoring must be included in the calculation and reporting of the data

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submitted in the Discharge Monitoring Report. Such increased frequency must also be indicated. For a pollutant parameter that may be sampled more than once per day (e.g., Total Chlorine Residual), only the average daily value must be recorded unless otherwise specified in this permit.

7. Averaging of Measurements

Calculations for all limitations which require averaging of measurements must utilize an arithmetic mean, except for bacteria which must be averaged as specified in this permit.

8. Retention of Records

Except for records of monitoring information required by this permit related to the permit registrant's sewage sludge use and disposal activities, which must be retained for a period of at least five years (or longer as required by 40 CFR §503), the permit registrant must retain records of all monitoring information, including all calibration and maintenance records of all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

9. Records Contents

Records of monitoring information must include:

- a. The date, exact place, time and methods of sampling or measurements;
- b. The individual(s) who performed the sampling or measurements;
- c. The date(s) analyses were performed;
- d. The individual(s) who performed the analyses;
- e. The analytical techniques or methods used; and
- f. The results of such analyses.

10. Inspection and Entry

The permit registrant must allow the Director, or an authorized representative upon the presentation of credentials to:

- a. Enter upon the permit registrant's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, and
- d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by state law, any substances or parameters at any location.

SECTION D. REPORTING REQUIREMENTS

1. Planned Changes

The permit registrant must comply with Oregon Administrative Rules (OAR) 340, Division 052, "Review of Plans and Specifications". Except where exempted under OAR 340-052, no construction, installation, or modification involving disposal systems, treatment works, sewerage systems, or common sewers must be commenced until the plans and specifications are submitted to and approved by the Department. The permit registrant must give notice to the Department as soon as possible of any planned physical alternations or additions to the permitted facility.

2. Anticipated Noncompliance

The permit registrant must give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. Transfers

This permit may be transferred to a new permit registrant provided the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the permit and the rules of the Commission. No permit must be transferred to a third party without prior written approval from the Director. The permit registrant must notify the Department when a transfer of property interest takes place.

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4. Compliance Schedule

Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date. Any reports of noncompliance must include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements.

5. Twenty-Four Hour Reporting

The permit registrant must report any noncompliance which may endanger health or the environment. Any information must be provided orally (by telephone) within 24 hours, unless otherwise specified in this permit, from the time the permit registrant becomes aware of the circumstances. During normal business hours, the Department's Regional office must be called. Outside of normal business hours, the Department must be contacted at 1-800-452-0311 (Oregon Emergency Response System).

A written submission must also be provided within 5 days of the time the permit registrant becomes aware of the circumstances. If the permit registrant is establishing an affirmative defense of upset or bypass to any offense under ORS 468.922 to 468.946, and in which case if the original reporting notice was oral, delivered written notice must be made to the Department or other agency with regulatory jurisdiction within 4 (four) calendar days. The written submission must contain:

- a. A description of the noncompliance and its cause;
- b. The period of noncompliance, including exact dates and times;
- c. The estimated time noncompliance is expected to continue if it has not been corrected;
- d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and
- e. Public notification steps taken, pursuant to General Condition B.7.

The following must be included as information which must be reported within 24 hours under this paragraph:

- a. Any unanticipated bypass which exceeds any effluent limitation in this permit.
- b. Any upset which exceeds any effluent limitation in this permit.
- c. Violation of maximum daily discharge limitation for any of the pollutants listed by the Director in this permit.

The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

6. Other Noncompliance

The permit registrant must report all instances of noncompliance not reported under General Condition D.4 or D.5, at the time monitoring reports are submitted. The reports must contain:

- a. A description of the noncompliance and its cause;
- b. The period of noncompliance, including exact dates and times;
- c. The estimated time noncompliance is expected to continue if it has not been corrected; and
- d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

7. Duty to Provide Information

The permit registrant must furnish to the Department, within a reasonable time, any information which the Department may request to determine compliance with this permit. The permit registrant must also furnish to the Department, upon request, copies of records required to be kept by this permit.

Other Information: When the permit registrant becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Department, it must promptly submit such facts or information.

8. Signatory Requirements

All applications, reports or information submitted to the Department must be signed and certified in accordance with 40 CFR §122.22.

9. Falsification of Reports

Under ORS 468.953, any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, is subject to a Class C felony punishable by a fine not to exceed \$100,000 per violation and up to 5 years in prison.

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SECTION E. DEFINITIONS

1. BOD means five-day biochemical oxygen demand.
2. TSS means total suspended solids.
3. mg/l means milligrams per liter.
4. kg means kilograms.
5. m³/d means cubic meters per day.
6. MGD means million gallons per day.
7. Composite sample means a sample formed by collecting and mixing discrete samples taken periodically and based on time or flow.
8. FC means fecal coliform bacteria.
9. Technology based permit effluent limitations means technology-based treatment requirements as defined in 40 CFR §125.3, and concentration and mass load effluent limitations that are based on minimum design criteria specified in OAR 340-041.
10. CBOD means five day carbonaceous biochemical oxygen demand.
11. Grab sample means an individual discrete sample collected over a period of time not to exceed 15 minutes.
12. Quarter means January through March, April through June, July through September, or October through December.
13. Month means calendar month.
14. Week means a calendar week of Sunday through Saturday.
15. Total residual chlorine means combined chlorine forms plus free residual chlorine.
16. The term "bacteria" includes but is not limited to fecal coliform bacteria, total coliform bacteria, and E. coli bacteria.
17. POTW means a publicly owned treatment works.