

**Cape Disappointment State Park  
Utility Infrastructure Improvements  
Phase 2  
Ilwaco, Pacific County, Washington**



Prepared for:



Washington State Parks and  
Recreation Commission (WSPRC)

and



Bureau of Land Management (BLM)

Prepared by:

**Parametrix**

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# Cape Disappointment State Park Utility Infrastructure Improvements, Phase 2 Ilwaco, Pacific County, Washington

*Prepared for*

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This EA was prepared in compliance with the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. Section 4321 et seq.), BLM NEPA Handbook (H-1790-1) and Related Procedures, Council on Environmental Quality regulations (40 CFR 1500-1508), and related guidance and applicable Executive Orders. The EA was also prepared to comply with the Washington State Environmental Policy Act (SEPA) (RCW 43.21C).

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- A Biological Assessment (BA)
- B Photos of the West Campground and Sewage Lagoon

## ACRONYMS AND ABBREVIATIONS

AINW	Archaeological Investigations Northwest, Inc.
APE	Area of Potential Effect
BA	biological assessment
BLM	Bureau of Land Management
BMP	best management practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
City	City of Ilwaco
Corps	United States Army Corps of Engineers
County	Pacific County
dBA	A-weighted decibel
EA	Environmental Assessment
Ecology	Washington State Department of Ecology
EDNA	Environmental Designation for Noise Abatement
ESA	Endangered Species Act
FHWA	Federal Highway Administration
FONSI	finding of no significant impact
FR	Federal Register
HDPE	high-density polyethylene
LCS	Land Classification System
MSL	mean sea level
MSW Ventures	Private Developers Marshall (Rich), Sorensen (Stan), and Wirkkala (Brian) of Discovery Heights Subdivision
NEPA	National Environmental Policy Act
NOAA Fisheries	National Marine Fisheries Service
ORCAA	Olympic Region Clean Air Agency
Park	Cape Disappointment State Park
PHS	Priority Habitats and Species
PM <sub>2.5</sub>	particulate matter 2.5 microns or smaller
PM <sub>10</sub>	particulate matter 10 microns or smaller
PUD	Public Utility District
PVC	polyvinyl chloride
RCW	Revised Code of Washington
RV	recreational vehicle
SEPA	State Environmental Policy Act
SHPO	State Historic Preservation Officer
SR 100	State Route 100

## ACRONYMS AND ABBREVIATIONS (CONTINUED)

Study	Fort Canby State Park Water and Sewer Feasibility Study
TKN	Total Kjeldahl Nitrogen
USBC	United States Bureau of Census
USC	United States Code
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation
WSPRC	Washington State Parks and Recreation Commission

# 1. INTRODUCTION

## 1.1 PROJECT BACKGROUND

### 1.1.1 Project Location and Description

Cape Disappointment State Park (Park) is located in Pacific County, at the mouth of the Columbia River, at the southwestern tip of Washington State (Township 9 North, Range 11 West, Sections 4 and 5; Township 10 North, Range 11 West, Section 32) (Figure 1). The Park is 1,882 acres in size and is composed of land owned by Washington State Parks and Recreation Commission (WSPRC), the Bureau of Land Management (BLM), the United States Coast Guard (USCG), and the US Army Corps of Engineers (Corps). Ownership of all Corps-administered federal lands at Cape Disappointment is vested in the United States of America. The Corps had primary administrative jurisdiction over these lands by virtue of an 1852 military reservation; however, BLM now shares jurisdiction over these lands with the Corps as reserved public lands in the United States. Privately owned land is located north and northeast of the Park. The city of Ilwaco (City) is located northeast of the Park. The Park is bordered on the west by the Pacific Ocean, partially on the east by Baker Bay, and on the south by the Columbia River.

WSPRC seeks to expand and improve the utility infrastructure at the Park to better accommodate current and future land and recreation uses. For this project, the water, sewer, electrical, and telephone infrastructure is proposed for replacement and upgrade. In particular, the current system of sewage treatment, a three-cell sewage treatment lagoon, is to be decommissioned and waste redirected to the City of Ilwaco's wastewater treatment plant. The proposed improvements have a discrete sequence for implementation to minimize service disruptions to facilities on the peninsula. For this reason, the proposed construction was separated into two distinct phases identified as Phase 1 and Phase 2 (Figure 2). Phase 1 has been completed as described below.

### 1.1.2 Phase 1 Actions

Phase 1 improvements included the replacement of sewer, water, and electrical systems in the Park, with these upgrades primarily occurring along State Route 100 (SR 100), at the Park entrance, and in extensions to USCG's Station Cape Disappointment and the City of Ilwaco. Phase 1 construction commenced in September 2003. Activities included sewer utility connection to the City's wastewater treatment plant; construction of two new sewage pump stations; and upgrades in water, phone, and electrical transmission between the Park entrance and the City of Ilwaco. These completed actions are summarized in more detail below:

- New sewer force main, water main, and phone conduit were extended along SR 100 West and SR 100 Spur from North Head Lighthouse Road to the Park entrance.
- New sewer, water, electrical, and phone services were extended along North Head Lighthouse Road and to Beard's Hollow, consistent with the future expansion of Park facilities at those locations. In total, approximately 26,500 linear feet of new water main (13,800 linear feet) and new sewer main (12,700 linear feet) were installed. All utilities were buried in a trench within the existing road prism.
- Two new sewage pump stations were constructed to convey sewage to the City's wastewater treatment plant.
- Fire hydrants, gate valves, air release valves, and pressure reduction stations were included as required.
- Utility trenches in SR 100 West were repaved, and North Head Lighthouse Road was entirely repaved.

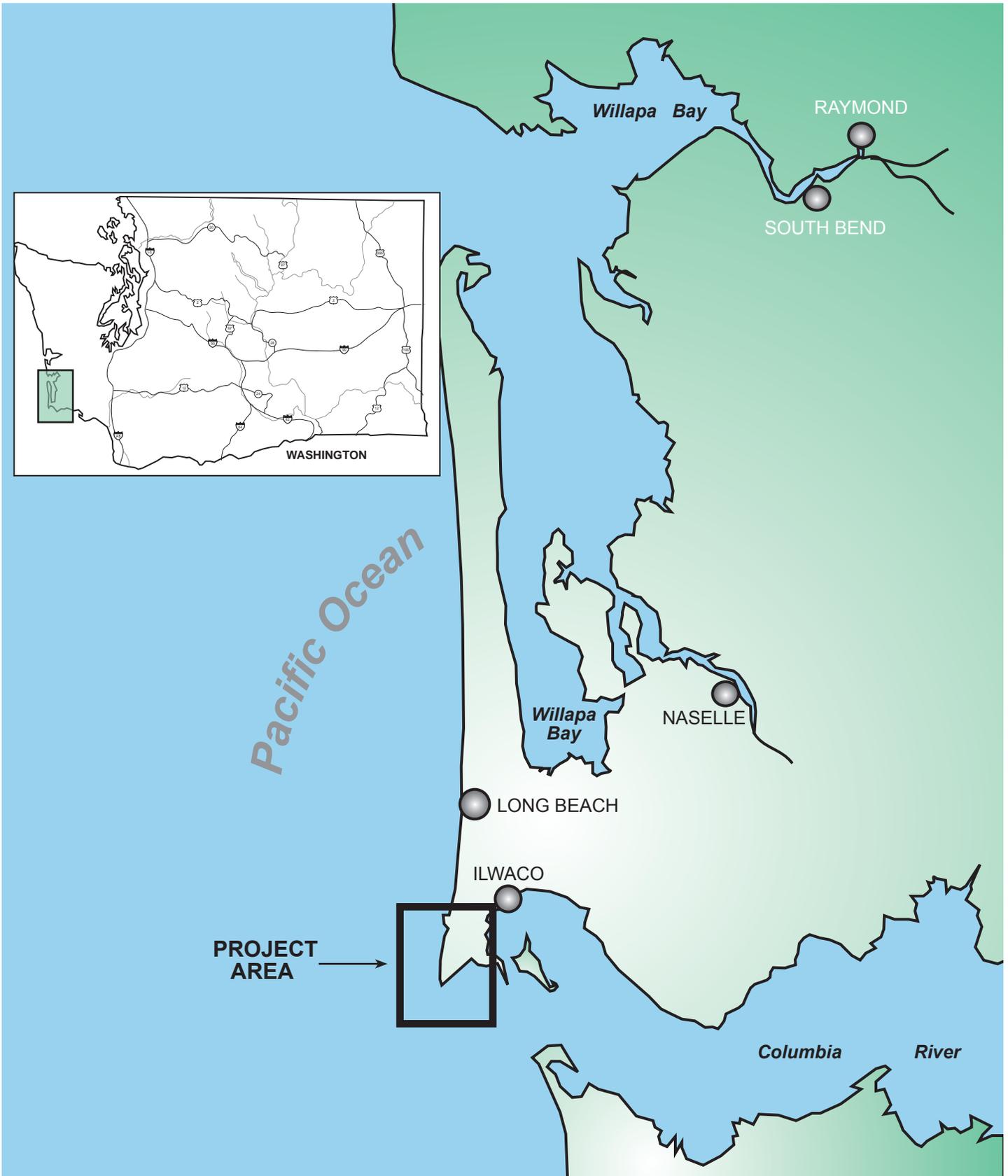
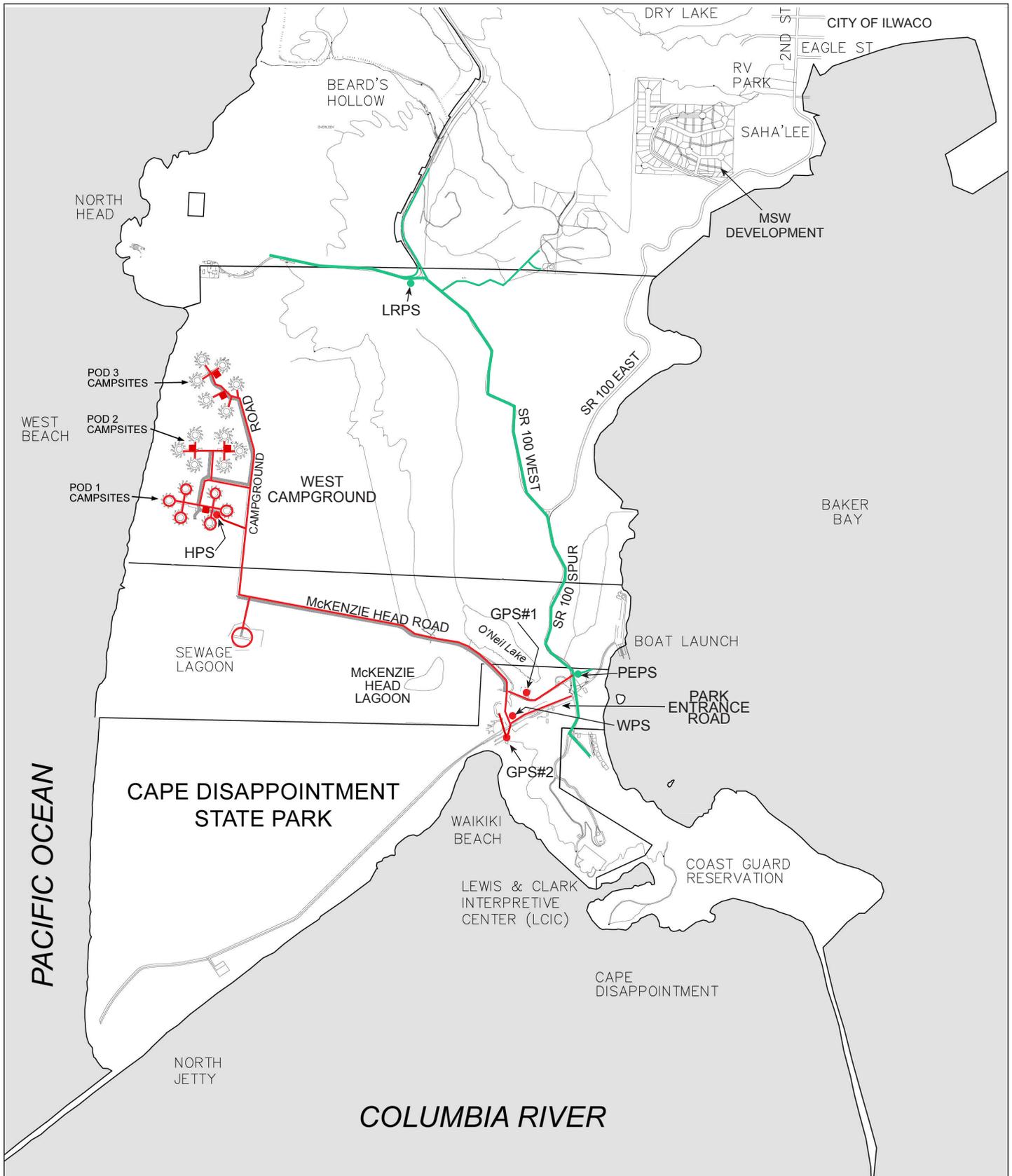


Figure 1  
Vicinity Map



Parametrix Cape Disappointment State Park 236-2542-007/02(34) 7/04 (B)

— Phase 1  
— Phase 2

Legend

**Phase 1**

PEPS = Park Entrance Pump Station  
LRPS = Lighthouse Road Pump Station

**Phase 2**

HPS = Hookups Pump Station  
WPS = Waikiki Pump Station  
GPS#1 = Contact Station Grinder Pump Station  
GPS#2 = Waikiki Grinder Pump Station  
■ = Campground Comfort Stations



**Figure 2**  
**Cape Disappointment State Park**  
**Utility Improvements Phases 1 & 2**

Under Phase 1, utilities were primarily installed within the road prism for SR 100 West, North Head Lighthouse Road, and the right-of-way of the Old Lighthouse Keeper's Trail. Phase 1 activities were evaluated in a stand-alone biological assessment (BA) and National Environmental Policy Act (NEPA) environmental assessment (EA). The USCG was the lead federal agency for the action, and a finding of no significant impact (FONSI) was approved in June 2003 for the NEPA EA. Associated with the BA, a biological opinion was approved in September 2003 by the United States Fish and Wildlife Service (USFWS).

### **1.1.3 Proposed Phase 2 Actions**

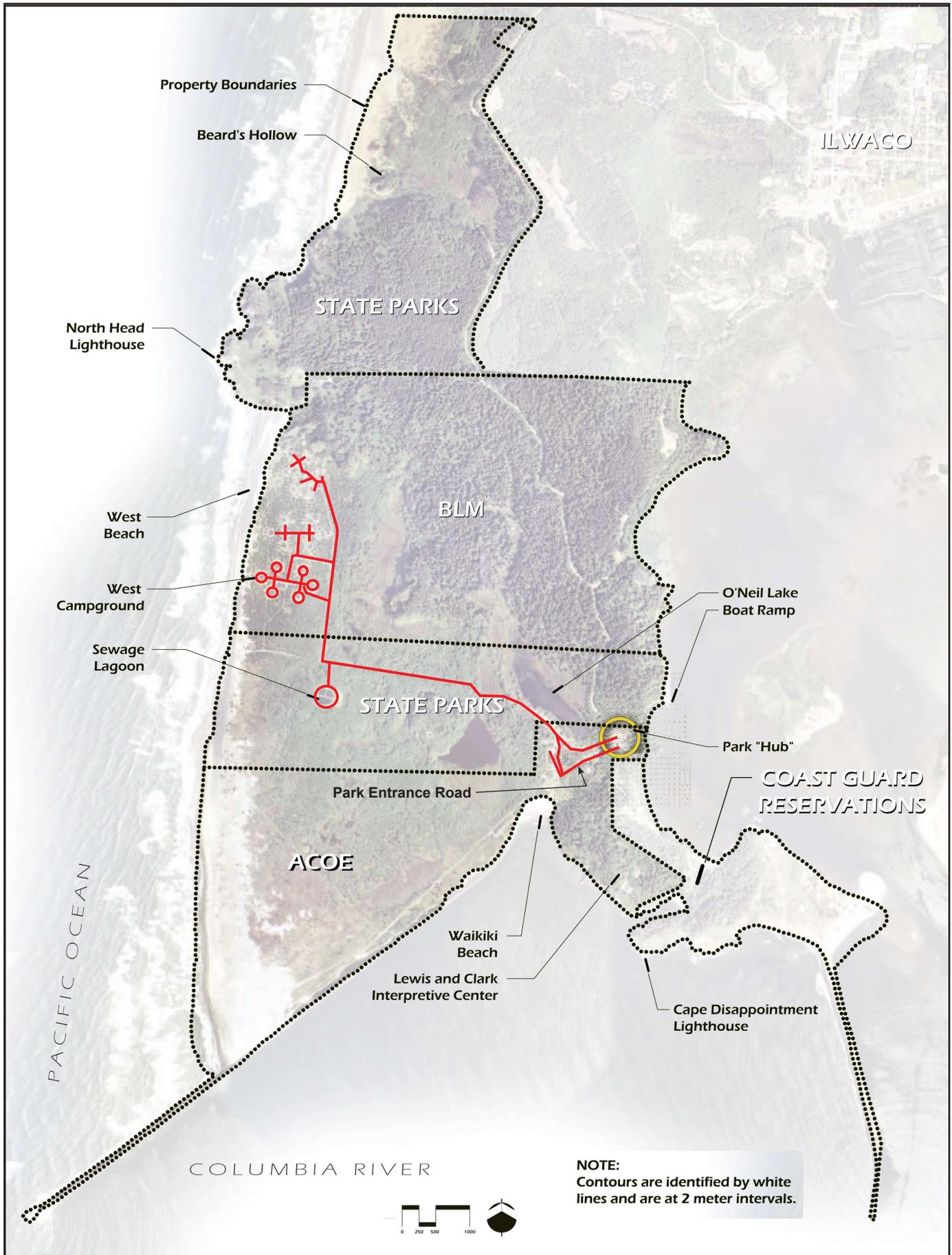
Phase 2 utility improvements are evaluated in this EA. Phase 2 activities will occur within the Park boundaries (Figure 2). Proposed improvements include replacement of water and sewer force mains and distribution lines, installation of new lines, upgrades to a sewage pump station, dismantling of a second sewage pump station, construction of two new grinder pump stations and their associated force mains, decommissioning of the sewage treatment lagoon, and upgrades to electrical and telephone systems. Phase 2 improvements are scheduled to begin in September 2004 and to be completed in December 2005; however, construction activities will only take place between September and December of each year to avoid the breeding season for bald eagles and marbled murrelets. These proposed actions are summarized in more detail below:

- The water distribution system will be replaced throughout the Park.
- The sewage distribution system will be replaced throughout the Park. The conveyance system will be redirected to the Phase 1 sewer transmission system and sewage will be conveyed to the City's wastewater treatment plant, bypassing the sewage lagoon. In areas where the sewer utility is not located under the road prism, special installation methods will be used to eliminate the need for trench excavation and habitat disturbance.
- The sewage treatment lagoon will be decommissioned: liquids will be decanted, the biosolids and other material will be used to fill the lagoon, the clay liner of the lagoon will be breached to allow drainage, the lagoon will be filled with material from Phase 1 construction, and the berms will be leveled and revegetated with native plants.
- The electrical grid in the Park entrance area and campground Pod 1 will be upgraded to a three-phase system, and the RV sites in Pod 1 will receive 50-amp service. In Pods 2 and 3, electrical service will be provided by a single-phase system.
- Telephone service will be extended to the middle and northernmost campground clusters (Pods 2 and 3, respectively).

## **1.2 AUTHORITY AND DECISION MAKING**

### **1.2.1 Federal and State Lands**

Proposed construction activities for Phase 2 will occur on property owned and managed by two federal agencies, the BLM and the Corps (Figure 3). WSPRC also owns and manages sizeable tracts of land within the Park, which are generally located in the south central and northern areas. For authorization to operate on federal lands, WSPRC is pursuing a new lease with BLM, and the current lease with the Corps is valid until 2016 (WSPRC 2003). Within the Park, BLM owns a total of 542 acres, which includes a majority of the forested area of the Park, plus the West Campground (adjacent to West Beach) (WSPRC 2003). The USCG maintains a life saving and training station, Station Cape Disappointment, adjacent to the Park and two lighthouses.



**Figure 3**  
**Cape Disappointment State Park**  
**Property Boundaries**

Construction proposed to occur on federal lands requires a right-of-way grant, which constitutes the federal nexus for this action, necessitating compliance with NEPA, Section 7 of the Endangered Species Act (ESA), Section 106 of the National Historic Preservation Act, and other federal laws, statutes, and executive orders. The right-of-way grant would authorize the installation, maintenance, and use of the proposed water, sewer, electrical, and telephone infrastructure improvements. Title 43, Chapter 35, Subchapter V of the Federal Land Policy and Management Act of 1976 authorize the granting of a right-of-way for utilities.

BLM has been identified as a participating federal agency for this action. There are two federal agencies (BLM, USCG) and one Washington State agency (WSPRC) involved in the proposed action (see Figure 3). The proposed project is primarily funded and mostly managed by the WSPRC, and the WSPRC is the primary beneficiary of the project. It involves a federal decision because federal approval (i.e., a right-of-way grant to authorize the installation and maintenance of the utility improvements on federal lands) would be required. It is also federalized because over half of the State Park is located on land owned by BLM and the Corps, and because the USCG is indirectly funding a portion of the sewage lagoon decommissioning. Ownership of all Corps-administered federal lands at Cape Disappointment is vested in the United States of America. The Corps had primary administrative jurisdiction over these lands by virtue of an 1852 military reservation; however, BLM now shares jurisdiction over these lands with the Corps as reserved public lands in the United States. It should also be noted that the National Park Service, through the passage of legislation creating the Lewis and Clark National and State Historical Park, would have administrative jurisdiction at Cape Disappointment State Park. The passage of this legislation is unknown at this time, although if adopted, it would create a collaborative thematic relationship between the National Park Service and WSPRC at the Park for the proposed Thomas Jefferson Memorial.

Since the WSPRC is the main beneficiary and the project would occur entirely on Cape Disappointment State Park lands, WSPRC is both lead state agency and the contracting officer for this EA. The EA has been prepared for the WSPRC and the BLM as cooperating state and federal agencies.

### **1.2.2 NEPA/SEPA Compliance**

As stated within BLM's H-1790-1 NEPA Handbook, in Chapter 1, subsection (A), General, all internally or externally proposed actions on or affecting public lands or resources under BLM jurisdiction must be reviewed for NEPA compliance. Therefore, this combined federal (BLM) and state (WSPRC) EA is prepared in accordance with BLM's H-1790-1 NEPA Handbook and in compliance with the National Environmental Policy Act of 1969 (P.L. 91-190) and the Council on Environmental Quality (CEQ) Regulations dated 29 November 1978 (40 CFR Parts 1500-1508). This EA has been prepared to meet the requirements of the participating federal agencies, the BLM and the USCG. In accordance with 40 CFR 1506.3, the purpose of using another agency's environmental document for NEPA compliance is to reduce paperwork, eliminate duplication, and make the process more efficient. The USCG plans to adopt this BLM-WSPRC EA and issue its own FONSI. The USCG FONSI will be bound at the front of this EA immediately following the BLM FONSI.

EAs serve as concise public documents to briefly provide sufficient evidence and analysis for determining the need to prepare an environmental impact statement or a FONSI in conjunction with decision making for federal actions. This EA will also help determine the feasibility of the project and assess the environmental effects of issuing a federal right-of-way grant to WSPRC for replacing utilities at the Park, including water, sewer, and electrical services on federal lands, and for providing new telephone service to the West Campground. NEPA is the jurisdictional authority for the EA instead of the Washington State Environmental Policy Act (SEPA), because over half of the State Park property is federally owned by the Corps and the BLM and utility improvements will be installed on these lands, and because the USCG is

indirectly funding a portion of the design and construction for the sewage lagoon decommissioning. However, as stipulated in the SEPA provisions identified in WAC 197-11-610 and 635, this EA is a combined NEPA and SEPA document; therefore, this NEPA EA will be adopted to satisfy the requirements for a SEPA determination of non-significance.

### **1.2.3 Scoping**

Scoping is an early and open process to determine the breadth of environmental issues and alternatives to be addressed in an environmental document. Scoping involves providing opportunities for agencies and the public to comment on the scope of issues to be addressed in the environmental document. Among other tasks, scoping determines important issues; identifies other permits, surveys, or consultations required by other agencies; and creates a schedule that allows adequate time to prepare and distribute the environmental document for public review and comment before a final decision is made. Scoping allows any interested agency, or any agency with jurisdiction by law or expertise (including the State Historic Preservation Office [SHPO], and Indian Tribes), to provide early input.

Scoping for Phase 2 occurred indirectly through the Phase 1 scoping process. As part of the Phase 1 EA, WSPRC conducted both internal scoping with appropriate staff and interested and affected agencies and groups. This interdisciplinary process defined the purpose and need, identified potential actions to address the need, determined the likely issues and impact topics, and identified the relationship of the preferred alternative to other planning efforts in the Park.

On September 16, 2002, the USCG approved a Programmatic EA, but the FONSI for the USCG Station Cape Disappointment water and sewer utility improvements was not approved until May 7, 2003, at which time the combined FONSI and EA were publicly issued. The Programmatic EA prepared by the USCG addressed the proposed project as described in the Gray and Osborne June 2001 *Fort Canby State Park Water and Sewer Feasibility Study* (Gray and Osborne 2001) and as described in proposed USCG water and sewage utility contracts with the City of Ilwaco (USCG 2002, 2003). A number of key issues were identified during the scoping process for the Programmatic EA that are applicable to the Phase 2 Utility Infrastructure Improvements Projects, including (1) a number of plant species protected or proposed for protection by the state but not under the federal ESA; (2) the marbled murrelet and bald eagle bird species, which are listed as threatened under the ESA, and the Sitka spruce-salal old-growth forest habitat at the Park (Station Cape Disappointment); (3) the Cape Disappointment Historic District, which is listed on the National Register of Historic Places and contains two historic lighthouses and other historic-era military sites; and (4) the likelihood of subsurface historical and prehistorical archaeological features (USCG 2002, 2003).

### **1.2.4 Organization of This EA**

This EA assesses two main alternatives under consideration, the Proposed Action and the No Action Alternative. Other alternatives were considered as part of this analysis, but were eliminated during detailed analysis because they did not meet the purpose and need for the project (refer to Section 2.3). The Proposed Action and No Action Alternatives are described in Sections 2.1 and 2.2, respectively. The main environmental topics covered in Chapters 3 and 4 in accordance with NEPA and as determined during internal scoping include *Geology/Soils/Topography, Wetlands/Vegetation, Water Quality/Floodplains, Fish and Wildlife, Protected Species, Air Quality and Noise, Historic Properties and Cultural Resources, Land Use and Recreation, Infrastructure, Socioeconomic Issues and Environmental Justice, and Cumulative Impacts*. For analysis of potential impacts to threatened or endangered species listed for protection under the ESA, and as required by Section 7 of the ESA, a Biological Assessment has been prepared and is attached to the EA as Appendix A.

### **1.2.5 Comments**

Public notice of the availability of this EA is provided on the BLM Website <<http://www.or.blm.gov/spokane>> under "Planning." Individuals and organizations can request the EA in writing, by phone, or by e-mail. The EA will be circulated to various federal and state agencies, individuals, businesses, and organizations on the Park's mailing list.

## **1.3 PURPOSE AND NEED FOR THE PROPOSED ACTION**

### **1.3.1 Purpose**

The primary goal of the Phase 2 utility infrastructure improvements is to upgrade the sewer, water, electrical, and telephone systems that exist within Cape Disappointment State Park to improve overall safety and operations and provide for future capacity needs. The project involves completing the replacement of the water and sewer systems and making revisions to the sewer system to allow the sewage treatment lagoon to be decommissioned. The electrical system will be upgraded to a three-phase system to meet the increase in energy needs for the new sewer system and the RV campground's vehicle site requirements for utilities. The telephone service will be upgraded, and will be available for the first time in the West Campground pods, where there is no reception for cell phone service.

WSPRC also has the following underlying objectives for this project:

- Provide long-term treatment and disposal of wastewater from the campground at the City of Ilwaco's wastewater treatment plant to allow the sewage treatment lagoon to be decommissioned. The Phase 1 improvements enabled sewage from different Park areas and from USCG Station Cape Disappointment to be transferred to the City's facility; Phase 2 will complete the sewer system revisions that are required for the City to handle sewage from every Park area.
- Replace antiquated water lines to improve capacity and reliability and to ensure that residents and visitors will have access to clean drinking water.
- Avoid affecting the federally threatened marbled murrelet and bald eagle habitat and nesting by constructing outside of their known breeding and nesting periods, and in previously improved areas.
- Avoid damage to any surface historic features or subsurface prehistoric cultural resources.

### **1.3.2 Need**

WSPRC needs to replace antiquated and under capacity water, sewer, and electrical systems at the Park to improve overall safety and provide for future capacity needs. The following subsections describe the specific need for replacing and upgrading the water, sewer, electrical, and telephone systems at the Park.

#### **1.3.2.1 Water System**

The replacement of the Park's water mains and distribution lines is necessary to prevent a system failure or breakage in aging lines and to ensure system reliability based on current and projected user demand. Previously, the City provided water via a 6-inch main routed along an unstable portion of the east leg of SR 100 where the roadbed had been damaged and repaired due to landslides. Due to the Phase 1 improvements, the current system now has adequate pressure and flow for fire suppression, and water throughout the park is distributed via 6-inch and 4-inch mains. Phase 2 continues this overall water distribution system upgrade by replacing the 6-inch main and upgrading the 4-inch main to a 6-inch main.

### **1.3.2.2 Sewer System**

Overall, the Park sewer system is a work in progress. The original sewage system collected flow from the Park and USCG Station Cape Disappointment using two “package unit” pump stations to transport the flow to the sewage lagoon for treatment. In 2003, the original sewer system was upgraded and rerouted as part of the Phase 1 utility infrastructure improvements. Phase 1 work redirected the flow from the USCG station and parts of the Park to the City’s wastewater treatment plant through two new pump stations and a new 6-inch force main. Phase 2 is necessary to complete the system by redirecting the flow coming from the West Campground and other areas of the Park away from the sewage lagoon to the new sewer system.

A new sewer system is needed to meet future demand, and to address the Washington State Department of Ecology’s (Ecology) concerns related to the inadequacy of the sewage lagoon treatment system. There is also concern that the existing sewage treatment system and service to the West Campground area could be compromised during large storm events that result in flooding or beach erosion in this area. The historical and projected shoreline movements at the Park caused by erosion and deposition are shown in Figure 4.

### **1.3.2.3 Electrical Power System**

The existing electrical grid is a single-phase power grid with a portion of the transmission system on overhead poles. The overhead section of the system is in close proximity to the shoreline near West Campground, which leaves the system vulnerable to beach erosion and winter surf. The existing electrical system would not support the proposed sewer pumping improvements, and additional capacity is needed to accommodate the addition of 50-amp services to RV campground sites for existing and future park users.

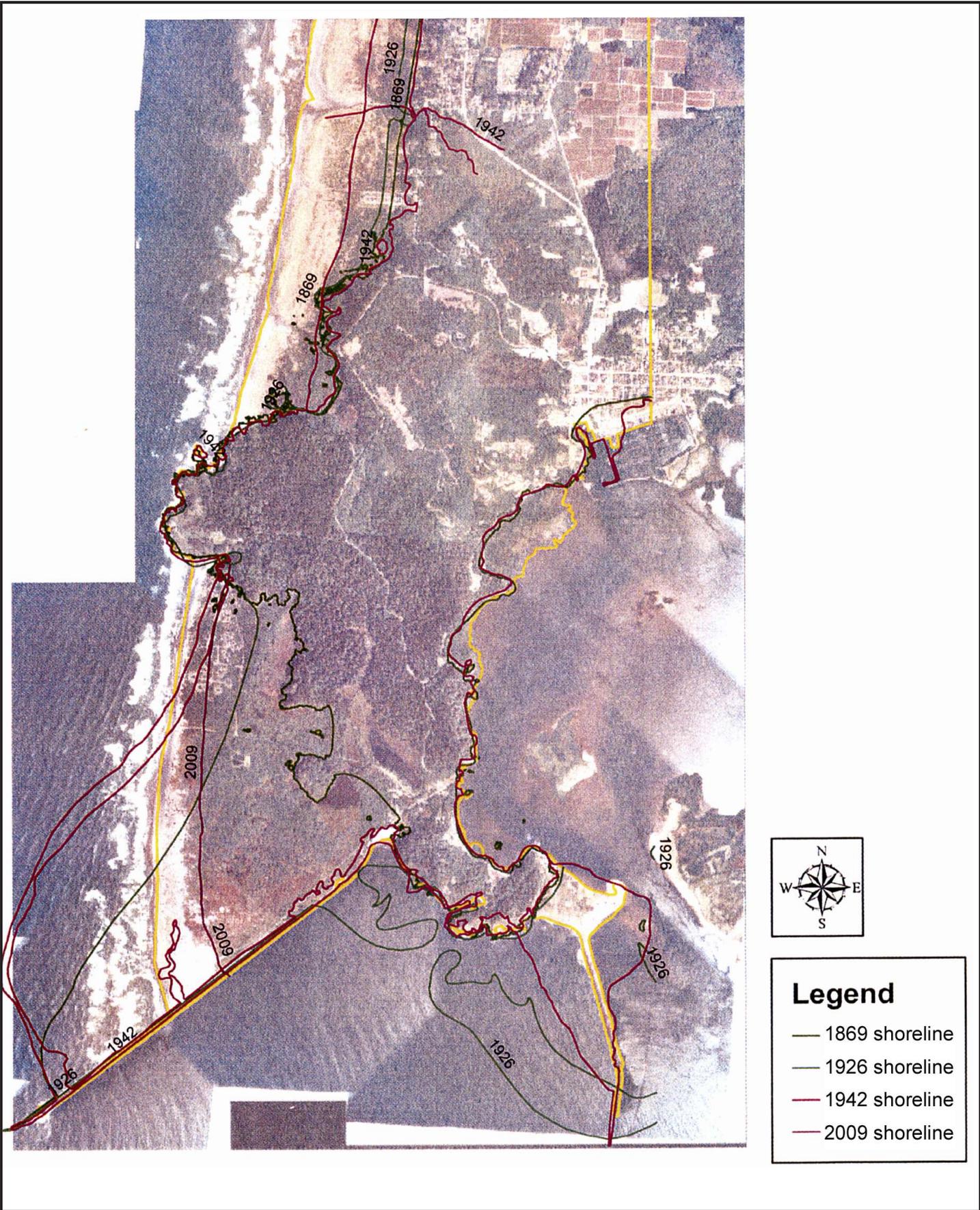
### **1.3.2.4 Telephone System**

Campground Pods 2 and 3 do not currently have telephone service, and the entire campground area does not have cell phone reception, a situation that is not expected to change. This represents a safety issue in terms of contacting emergency services’ personnel in the event of an accident or natural disaster. To resolve this problem, telephone conduit and cable will be provided to selected comfort stations in the three campground areas to provide public pay phone service.

These circumstances, plus increased interest in the Park’s role in the upcoming bicentennial of the Lewis and Clark expedition, led WSPRC to pursue funding from the Washington State Legislature in 2001 to construct new sewer and water connections and other associated utilities.

## **1.3.3 Relationship to Existing Statutes and Plans**

The most common land use authorization needed for the project is a right-of-way grant for telephone lines, electric transmission and distribution lines, and water and sewer distribution systems. Title 43, Chapter 35, Subchapter V of the Federal Land Policy and Management Act of 1976 authorizes the granting of a right-of-way for utilities. Another major type of authorization involves lease of sites for recreation and public purposes. Under a separate action from the Phase 2 Utility Infrastructure Improvements Project, WSPRC is pursuing a lease renewal under this provision with BLM to approve this and other actions at the Park.



**Figure 4**  
**Cape Disappointment State Park**  
**Historic and Projected Shoreline Map**

### **1.3.3.1 Pacific County**

#### **Comprehensive Plan**

The Utilities element of the Pacific County Comprehensive Plan, 1998, has one goal and two policies relevant to the project:

**Goal U-2:** Negative impacts associated with the siting, development, and operation of utility services and facilities on adjacent properties and the natural environment should be minimized.

- **Policy U-2.4:** *Where practical, utilities should be encouraged to place facilities underground and encourage the reasonable screening of utility meter cabinets, terminal boxes, pedestals, and transformers in a manner reasonably compatible with the surrounding environment.*
- **Policy U-2.5:** *The joint use of transportation right-of-ways and utility corridors should be encouraged, provided that such joint use is consistent with the limitations as may be prescribed by applicable law and prudent utility practice.*

#### **Shoreline Management Program**

There are no specific goals and policies within the Pacific County Shoreline Management Program that address the proposed project, with the exception of the Utilities Element, which has two policies relevant to the project identified in Section 13 - Utilities, under (A) Natural Environment Policies:

- “1. *Utility systems, such as a long-range transmission lines, distribution lines, and similar facilities are permitted on natural shorelines where unavoidably necessary.*
2. *A permit may be granted subject to the following regulations:*
  - a. *Where such utility systems cross shoreline areas, clearing necessary for installation or maintenance shall be kept to the minimum width necessary to prevent interference by trees and other vegetation with the proposed facilities.*
  - b. *Upon completion of installation of such utility systems or of any maintenance project, which disrupts the environment, the disturbed area shall be regraded to compatibility with the natural terrain and replanted to prevent erosion and provide an attractive, harmonious vegetation cover” (Pacific County 2000).*

### **1.3.3.2 Coastal Zone Management Act**

The federal Coastal Zone Management Act of 1972 requires federal agencies to be consistent with state CZM programs for activities that affect land use, water use, or natural resources of the coastal zone. Under Washington’s program, activities must comply with the “six enforceable policies” or laws of the state program, including the Shoreline Management Act, the State Environmental Policy Act (SEPA), the Clean Water Act, the Clean Air Act, the Energy Facility Site Evaluation Council, and the Ocean Resource Management Act. The Proposed Action specified in this document will be reviewed against the requirements of the Shoreline Management Act, SEPA, Clean Air Act, and Clean Water Act. The Proposed Action will not affect Energy Facility Site Evaluation Council or Ocean Resource Management Act resources. Affected local governments, state agencies, Indian Tribes, and federal agencies will be provided the opportunity to review or consult on the Proposed Action during or before the public review period for this EA. In addition, to ensure compliance with the Pacific County Shoreline Management Program, a shoreline exemption was filed with the County in August 2004 for the Phase 2 utility alignment. Specifically, the utility alignment proposed for installation in the McKenzie Head Road prism

occurs within 75 feet of O'Neil Lake, which is a shoreline of the state. A copy of this exemption and a transmittal letter will be forwarded to Ecology for their review and concurrence.

### **1.3.3.3 Washington State Growth Management Act**

The Washington State Growth Management Act lists 13 goals for the purpose of guiding the development of comprehensive plans and development regulations (RCW 36.70A.020). Goal number 9, which addresses open space and recreation, is to “Encourage the retention of open space and development of recreational opportunities, conserve fish and wildlife habitat, increase access to natural resource lands and water, and develop parks.” Goal number 12, which addresses public facilities and services, is to “Ensure that those public facilities and services necessary to support development shall be adequate to serve the development at the time the development is available for occupancy and use without decreasing current service levels below locally established minimum standards.” The proposal to improve the infrastructure at a state park is consistent with these Growth Management Act goals.

### **1.3.3.4 Compliance Statement**

The proposed project is in compliance with the Pacific County Comprehensive Plan and Shoreline Management Program, the Coastal Zone Management Act, and the Growth Management Act because of the following:

- The project would be consistent with the goals and policies listed above because the project will place most of the utility improvements either below grade or in facilities that have been designed in a manner to blend with the surroundings.
- The project will also primarily use the existing transportation right-of-way for the improvements.
- Where the alignment is located in environmentally sensitive areas, pipe-bursting, slip-lining, and horizontal directional drilling methods of installation will be used to avoid open trench excavation and ground disturbance.

### **1.3.4 Summary of Impacts**

For a comparative summary of impacts by alternative, refer to Table 1 provided below.

**Table 1. Comparison of Alternatives and Impacts**

<b>ALTERNATIVES</b>	<b>No Action</b>	<b>Proposed Action</b>
	<b>No implementation of water, sewer, electrical, and telephone system upgrades to the Park</b>	<b>Implementation of water, sewer, electrical, and telephone system upgrades to the Park</b>
<b>Resource Issues &amp; Impacts</b>		
Geology/Soils/Topography	There are no direct impacts from the No Action Alternative; however, coastal erosion would continue at lower elevations in the Park, in particular near the West Campground and the sewage lagoon, increasing the risk of disturbance to soils, and potentially jeopardizing utility services and park operations.	Minor to moderate, short-term impacts to geology and soils would occur during construction under the Proposed Action. The Proposed Action (Phase 2 activities) would require disturbance of approximately 400 square feet of land for construction of the two grinder pump stations, approximately 39,000 square feet for trenches and approximately 70,000 square feet for decommissioning of the sewage lagoon. In total, 2.64 acres would be disturbed. Best management practices (BMPs) described in Section 2.1.8.1, such as straw, jute matting, filter fabric, and temporary erosion control measures, will be used to reduce these potential impacts.
Wetlands/Vegetation	There are no direct impacts from the No Action Alternative; however, coastal erosion would continue at lower elevations in the Park, in particular near the West Campground and the sewage lagoon, increasing the risk of disturbance to wetlands, and potentially jeopardizing utility services and park operations.	The Proposed Action would result in negligible impacts on wetlands because construction under this alternative will be primarily limited to the existing road prism (Park Entrance Road, McKenzie Head Road, Campground Road) or developed areas (sewage treatment lagoon and West Campground). Where construction occurs in undeveloped areas, wetlands will be avoided. The existing lines will be replaced using open trenching within road prisms and existing improved areas and three subsurface methods: pipe-bursting, a technique similar to boring, where the existing pipe remains in place and a larger pipe is pushed through inside it; slip-lining, where a smaller diameter pipe is pulled through an existing line, and horizontal directional drilling, where a cutting tool is attached to the end of a drilling rod that is pushed into the ground and drills a pipe through the hole it creates. Pipe-bursting, slip-lining, and horizontal directional drilling will be used in environmentally sensitive areas, including wetlands, to minimize impacts to these resources. Local permits may be required for construction where it affects wetland buffers outside of the existing roadway prism. To reduce potential impacts, avoidance will be the primary mitigation measure in conjunction with barrier fencing and sediment control devices installed along the road prism (refer to Section 2.1.8.2).

**Table 1. Comparison of Alternatives and Impacts (continued)**

<b>ALTERNATIVES</b> <b>Resource Issues &amp; Impacts</b>	<b>No Action</b>	<b>Proposed Action</b>
	<b>No implementation of water, sewer, electrical, and telephone system upgrades to the Park</b>	<b>Implementation of water, sewer, electrical, and telephone system upgrades to the Park</b>
Water Quality/Floodplains	There will be no direct impacts; however, coastal erosion would continue to occur in the low-lying areas of the Park, resulting in potential water quality impacts from contaminants should the existing sewer system fail or be breached.	There is potential for erosion and sedimentation to occur during construction if runoff is not controlled; however, it is unlikely that erosion would affect surface water quality due to the strict adherence to erosion and sedimentation BMPs. These BMPs, listed in Section 2.1.8.3, would be used to minimize erosion and sedimentation impacts. Surface water quality may improve due to Phase 2 decommissioning actions for the sewage treatment lagoon and sewer system upgrades. These actions would eliminate the use of the existing sewage system and lagoon and minimize the potential for contamination from a system failure in the event of coastal erosion or flooding.
Fish and Wildlife	There will be no direct impacts; however, there is the possibility for continual maintenance and repair activities under this alternative to maintain the existing water and sewer system. Depending on the extent and magnitude of the repair and maintenance activities, this could result in noise disturbance impacts to wildlife.	Project construction may result in localized, short-term increases in noise levels, which may be a source of disturbance for some wildlife species. Project-related disturbance to wildlife is expected to be minimal due to the short duration of the disturbance, current high level of use of the work areas by Park visitors (e.g., roads and campgrounds), and availability of alternate habitat in the Park. No long-term harm to fish and wildlife or their habitat in the project area is anticipated from construction and implementation of the Proposed Action. There are no fish-bearing streams in the project area, and the project will involve no in-water work. All utility work in the Proposed Action will occur within existing improved areas and should not affect fish or wildlife habitat. Mitigation measures for wildlife include limiting the amount of site development and land clearing and avoiding disturbance to sensitive habitat such as wetlands and heavily forested areas that may be used by wildlife (see Section 2.1.8.4).
Protected Species	There are no direct impacts; however, there is the possibility for continual maintenance and repair activities under this alternative to maintain the existing water and sewer system. Depending on the extent and magnitude of the repair and maintenance activities, this could result in noise disturbance impacts to protected species, such as marbled murrelets and bald eagles.	The Proposed Action is not expected to have any adverse effect on protected species or their habitat. No habitat for special status species will be modified or removed for project implementation. Construction activities have been scheduled to avoid the critical nesting periods for marbled murrelets and bald eagles, and there are no known active nest sites for protected species within 0.5 mile of the proposed work areas. Potential disturbance of protected species from project-related noise is expected to be minimal, given the short duration of the disturbance, current high level of use of the work areas by Park visitors (e.g., roads and campgrounds), and availability of alternate habitat in the Park. BMPs, such as limiting construction to non-critical times and installing noise-attenuating devices on construction equipment, would be used to minimize the potential effects of project-related noise as outlined in Section 2.1.8.5.

**Table 1. Comparison of Alternatives and Impacts (continued)**

<b>ALTERNATIVES</b>	<b>No Action</b>	<b>Proposed Action</b>
	<b>No implementation of water, sewer, electrical, and telephone system upgrades to the Park</b>	<b>Implementation of water, sewer, electrical, and telephone system upgrades to the Park</b>
<b>Resource Issues &amp; Impacts</b>		
Air Quality and Noise	There are no direct impacts from the No Action Alternative however; there is the possibility for continual maintenance and repair activities under this alternative to maintain the existing water and sewer system. Depending on the extent and magnitude of the repair and maintenance activities, this could result in noise disturbance impacts.	Short-term and localized impacts to air quality would occur during construction, including the generation of dust and exhaust emissions. BMPs would be used to minimize these potential effects during construction as outlined in Section 2.1.8.6
Historic Properties and Cultural Resources	There are no direct impacts; however, indirectly continued coastal erosion at the Park could potentially uncover cultural, historic, or archeological resources, although this probability is highly unlikely.	Based on AINW's intensive cultural resource inventory (AINW 2003b), a moderate to high probability area for cultural/historical resources also exists at the Park entrance. This location is within the APE for the Phase 2 actions. A professional archaeologist and/or a tribal cultural specialist would monitor construction at these locations to ensure protection of sensitive cultural/historical resources.
Land Use and Recreation	The potential exists for moderate direct and indirect impacts to land use, recreation, and visitation at the Park from deteriorating water and sewer utility systems. Current and future land/recreation use of the Park as guided by their Master Plan could be impaired without adequate public facilities, and fire/life safety could be compromised without utility upgrades.	The current land use would be affected because a small amount of land would be altered for construction of the two grinder pump stations and converted to a utility use (400 square feet), and the sewage treatment lagoon will be decommissioned and eventually redeveloped for recreational use. Mitigation will include the installation of landscaping at each site to revegetate and partially restore the natural landscape (see Section 2.1.8.8.). Potential positive benefits could also result to land/recreation uses at the Park from the upgrades to the water and sewer system, as adequate public facilities will improve the Park's operations and provide a better visitor experience for the Park's users.
Infrastructure	No upgrades to the water and sewer system would result in continual maintenance and upkeep, and potential service interruptions for repair, and due to ongoing coastal erosion, potential failure of the existing sewage system. If improvements are not made to the water systems, the supply of potable water could also be jeopardized, and the lack of water pressure and fire flow could pose a danger to wildlife habitat and Park residents and visitors in the event of a fire. The net effect would be moderate to major direct and indirect impacts to infrastructure under the No Action Alternative.	The water and sewer system would be upgraded, resulting in increased efficiency and level of service to park operations. The potential failure of the existing sewage system due to coastal erosion would be removed through the decommissioning of the sewage lagoon and the installation of the new sewer system.
Socioeconomic Issues	There are no impacts under the No Action Alternative.	Implementation of the Proposed Action would provide needed utility capacity upgrades to the Park, and in conjunction with increased demand associated with annual visitation and the upcoming Lewis and Clark bicentennial celebration. The improvements would support the local economy relative to increased visitation at the Park.
Compliance with the Purpose and Need:	Not viable as No Action Alternative does not meet purpose need. The project would not support the needed long-term capacity and reliability for the Park's water, sewer, electrical, and telephone services.	The project is viable as it provides the needed long-term capacity and reliability to maintain the Park's water, sewer, electrical, and telephone services.

## 2. DESCRIPTION OF ALTERNATIVES

### 2.1 ALTERNATIVE 1 (PROPOSED ACTION)

The Proposed Action will improve the infrastructure at the Park, including the water, sewer, electrical, and telephone systems. All Phase 2 activities will occur within the Park boundaries (see Figure 2). Proposed improvements include replacement of water and sewer force mains and distribution lines, installation of new lines, upgrades to a sewage pump station, dismantling of a second pump station, addition of two new grinder pump stations and associated force mains, decommissioning of the sewage treatment lagoon, and upgrades to electrical and telephone systems.

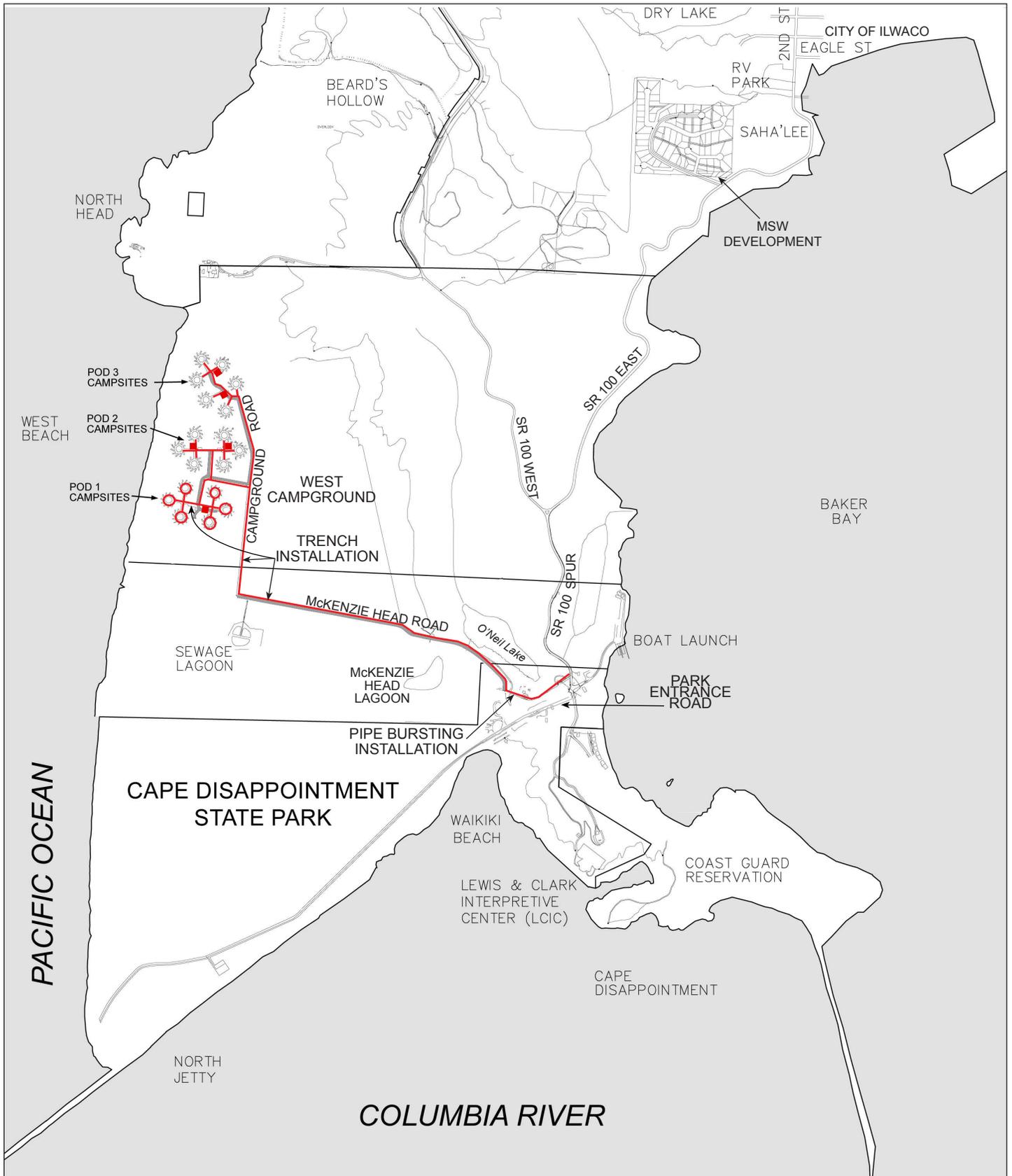
The schedule for Phase 2 improvements has been planned to avoid construction-related disturbance during the critical breeding seasons for protected species. The critical breeding season is from January 1 through August 15 for bald eagles, and from April 1 through September 15 for marbled murrelets. To avoid these periods, activities will be phased to occur from September through December of 2004 and 2005. Specific phasing of construction activities is detailed in Section 2.1.6.1. Certain activities associated with project construction, particularly those that do not involve heavy equipment, material hauling, or excessive noise levels, may occur during the restricted breeding season, as such activities will not rise to the level of disturbance or adverse effect. Such activities are also discussed in Section 2.1.6.1.

#### 2.1.1 Improvements to the Water System

All of the approximately 12,000 linear feet of water lines (1-inch through 6-inch diameter) within the Park will be replaced (Figure 5).

- Approximately 7,175 linear feet of new 6-inch main, of high-density polyethylene (HDPE) construction with fused joints, will be installed from the Park entrance at SR 100 to campground Pods 1 and 2, including the interior roads serving these pods. The new line will begin at the meter that was installed in Phase 1, which is located just west of SR 100 Spur, and approximately 200 feet north of the intersection with Park Entrance Road. The alignment between the meter and McKenzie Head Road will be along the paved road that lies north of and parallel to Park Entrance Road. It then continues west along McKenzie Head Road to Campground Road.
- Along Campground Road, north of the interior road leading to Pods 1 and 2, 1,550 linear feet of 4-inch line will be installed and will extend to the comfort stations in Pod 3.
- Approximately 3,000 linear feet of new 1-inch water line, of polyethylene construction, will replace the existing service to all 60 campsites in Pod 1 and each of the six hose bibs in both campground Pods 2 and 3. The existing water lines in the campground area will be abandoned.
- Gate valves, hydrants, and air release valves will be installed as required.

Two methods of installation will be used for the water lines. Between the meter and McKenzie Head Road, the 6-inch line will be installed using the pipe-bursting method. With this method of installation, a new line is pulled through the existing line, which ruptures the old pipe as it is pulled through. This method is often used in environmentally sensitive areas, such as wetlands or areas of potential cultural resources, to reduce or eliminate the need for trench excavation, and it will be used on this project for segments that are not located within the existing road prism or in previously improved areas. Along McKenzie Head Road and Campground Road, the line will be installed by open cut trenching within the road prism. This method of installation will be continued along Campground Road and the interior campground roads that lead west from it into campground Pods 1, 2, and 3.



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■ = Campground Comfort Stations



**Figure 5**  
**Cape Disappointment State Park**  
**Water System Improvements**

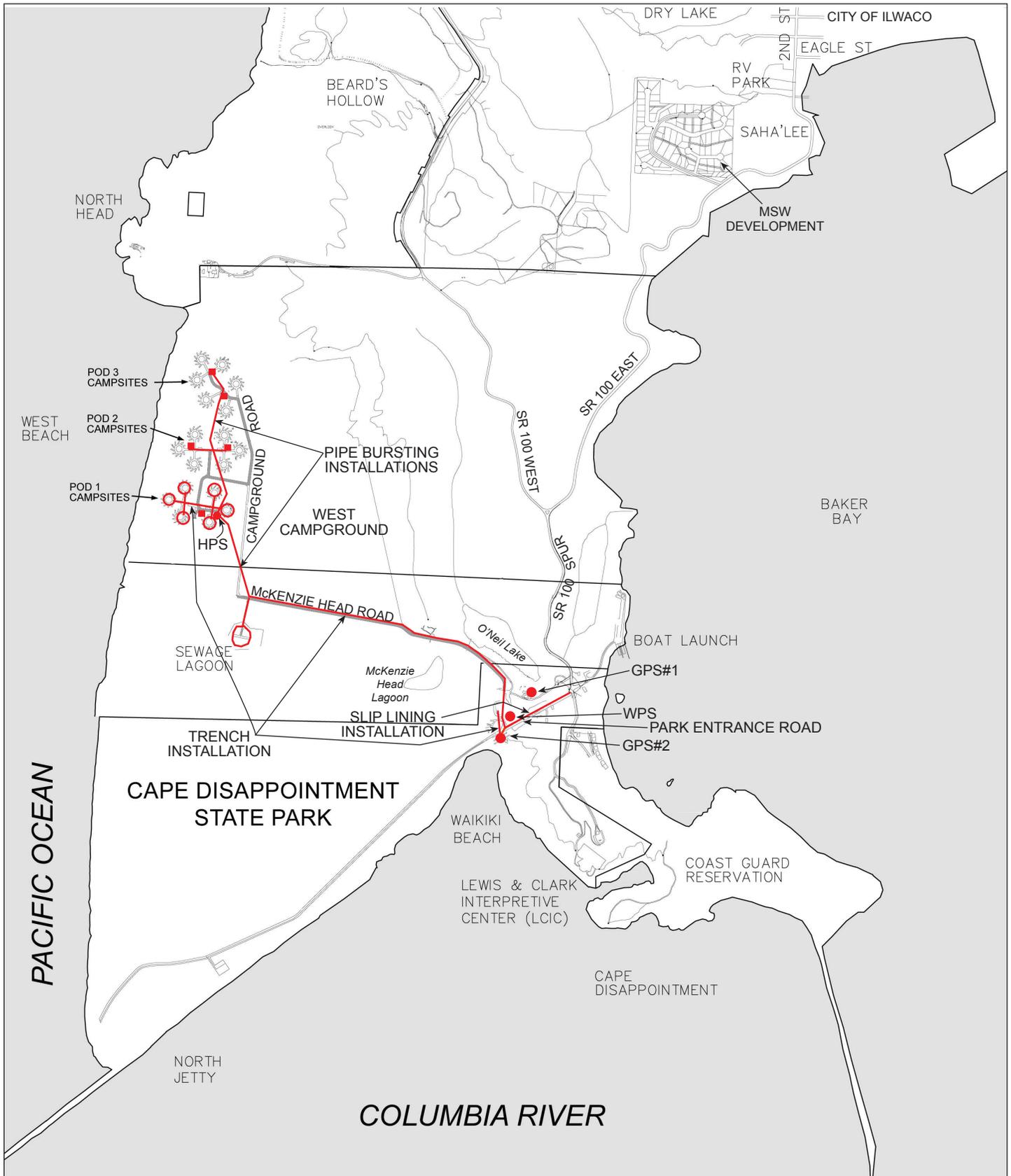
## 2.1.2 Improvements to the Sewer System

The sewer system improvements will allow the sewage lagoon to be decommissioned and the Park wastewater to be transferred to the City's wastewater treatment plant via the wastewater conveyance system constructed in Phase 1 and Phase 2 (Figure 6). Specifically, the elements of the Phase 2 work include:

- Replacement of sewer lines throughout the Park.
- New gravity sewer line between trailer dump and new Waikiki grinder pump station.
- New replacement force mains to redirect the flow to the new Park entrance pump station.
- Rehabilitation of the Hookups pump station.
- Installation of two new grinder pump stations.
- Dismantling of the Waikiki pump station.

Approximately 8,100 linear feet of new 6-inch pressure force main, of HDPE construction with fused joints, will be installed between Manhole 4 at the intersection of SR 100 and the Park entrance, and the Hookups pump station located in Pod 1. Subsections of this alignment are as follows:

- From Manhole 4 to the Waikiki pump station, 900 linear feet of 6-inch force main will be installed using the slip-lining method, where a smaller size pipe is inserted into a larger pipe, in this case the existing 8-inch sewer line.
- A new grinder pump station will be installed 40 feet northeast of the Park contact station to service existing sewer lines to the O'Neil Lake comfort station, the Park contact station, and the maintenance facilities.
- A second grinder pump will be installed at the southwest corner of McKenzie Head Road and Park Entrance Road, near the Waikiki comfort station parking lot. The grinder pump station will service this comfort station and the trailer dump sewer service. The two new grinder pump stations will replace the Waikiki pump station, which will be taken out of service. The grinder pump stations are 5- by 8-foot polyethylene tanks that are installed below grade. Each grinder pump station will require approximately 60 cubic yards of excavation and 30 cubic yards of backfill, and land disturbance of 200 square feet.
- The Waikiki pump station will be partially dismantled by removing the top section to 4 feet below grade. The disturbed ground area, 3 feet in diameter, will be revegetated with grass.
- Utility connections, such as adjusting the capacity of the existing distribution lines, will be made to several facilities, including the contact station, trailer dump, and the Waikiki and O'Neil Lake comfort stations. This measure is required to divert the flow of sewage to the new grinder pump stations.
- Within the road prism of McKenzie Head Road, 5,900 linear feet of 6-inch sewer force main will be replaced by the open cut trenching method, and the pavement will be replaced. The metal culvert near the road leading to the sewage lagoon will receive a concrete cap, and will then be encased in concrete down to the base of the culvert. The water and sewer lines will be installed by the horizontal directional drilling method under the pipe culvert. A drilling rod with a cutting tool will be inserted into a starting hole close to the culvert and directed down under the culvert and up again to a location on the other side. The hole behind the drilling head will be kept open with bentonite. A pipe will then be connected to the end of the drilling rod and pulled through the hole. This method of installation can be done without any additional excavation by mounting the drill rig on the ground.



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- Legend**  
 HPS = Hookups Pump Station  
 WPS = Waikiki Pump Station  
 GPS#1 = Contact Station Grinder Pump Station  
 GPS#2 = Waikiki Grinder Station  
 ■ = Comfort Station

**Figure 6**  
**Cape Disappointment State Park**  
**Sewer System Improvements**

- Approximately 1,300 linear feet of existing 4-inch force main, located between McKenzie Head Road (near the access road to the sewage lagoon) and the Hookups pump station in Pod 1, will be upsized to 6-inch force main. Since this segment follows the existing underground alignment through terrestrial and wetland resources, pipe-bursting will be used to avoid trenching.

Other alignment sections and activities include:

- Approximately 300 linear feet of 8-inch gravity sewer will be installed between the Trailer Dump and the new Waikiki grinder pump station using the open cut trenching method.
- Approximately 1,800 linear feet of 6-inch gravity sewer, of polyvinyl chloride (PVC) construction, will be installed between the Hookups pump station and Pod 3. As the route extends through natural areas, this segment will also be installed using the pipe-bursting method. From this main line, 4-inch lines will extend to the comfort stations in all three campground pods and will be installed by open cut trenching.
- The sewer lines to each RV site in Pod 1 will be replaced with new 4-inch lines. They will be installed by standard open trench excavation adjacent to the existing lines, as this is a previously improved area. The old sewer lines will be abandoned in place.
- The 2-horsepower pumps inside the Hookups pump station will be replaced with 10-horsepower pumps to meet the additional dynamic head<sup>1</sup> required to pump sewage to the Park entrance pump station through the new 6-inch force main.

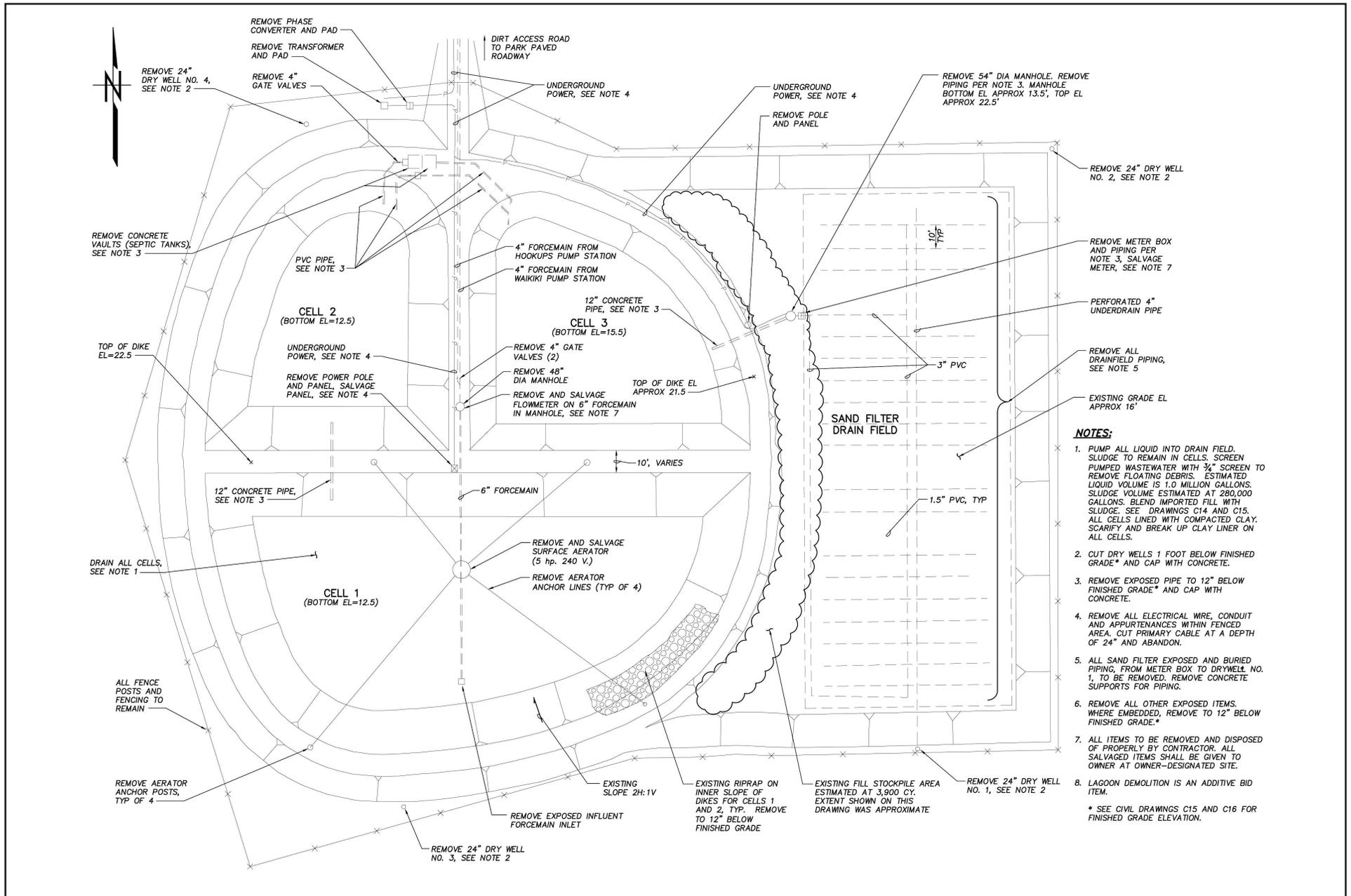
### **2.1.3 Decommissioning of the Sewage Treatment Lagoon**

The proposed sewage pumping upgrades will allow the Park to abandon the sewage lagoon (Figure 7). The flow from the Hookups pump station and all flow from the Park entrance area would be conveyed to the Park entrance pump station, which was completed in Phase 1. This facility pumps to the Ilwaco wastewater treatment plant. Sewage will no longer be directed to the lagoon.

Decommissioning will consist of the lagoon effluent being decanted. The clay liner will be scarified or otherwise breached to allow discharge to the surrounding soil. The dike surrounding the lagoon will be leveled and imported fill material will be placed in the lagoon. The biosolids from the lagoon will be put to beneficial use as a soil amendment in the immediate area of the lagoon treatment facility. The biosolids will be mixed with the fill material and spread over the sand filter bed and former lagoon area. The area will then be revegetated. The final elevation of the lagoon area will be approximately 19 feet above mean sea level (MSL). According to Ecology, the lagoon site shall be left undisturbed for approximately 3 years before new development occurs on the site. Additional sampling must also occur 30 days prior to redeveloping the site (Saul 2003). The Department of Ecology issues a general permit for biosolids management (Chapter 173-308 WAC- Biosolids Management). As a rule, this permit applies to all treatment works treating domestic sewage that prepare biosolids for beneficial use, apply biosolids to the land, or dispose of municipal sewage sludge in a municipal solid waste facility. This permit process will be initiated prior to the decommissioning of the sewage lagoon under Phase 2.

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<sup>1</sup> Dynamic head is the energy needed to push the material through the piping system. More energy would be needed to push the material farther through new pipeline.



The sewage lagoon decommissioning sequence will include the following steps:

- Phase 2 sewer revisions will eliminate all flow into the sewage lagoon in December 2004. Most of the liquids will evaporate during the summer of 2005. Excessive liquids can be disposed of on the existing drain field.
- Biosolids will be sampled to confirm the results of the initial sampling and ensure that the sludge can be disposed of on site as a soil amendment for beneficial use.
- A biosolids permit will be filed with the Department of Ecology for review and approval prior to decommissioning of the sewage lagoon. Following approval of the permit, the following actions will materialize:
  - Biosolids will be screened to remove floatable material, which mostly consist of plastics from the biosolids. This material will be hauled to a landfill.
  - Biosolids will be dewatered as required and set-aside.
  - The clay liner in the lagoons will be scarified to allow free movement of ground water in the lagoon area, and the top of the dikes will be pushed into the bottom of the lagoons.
  - Fill material will be added in lifts, and biosolids will be worked into the fill at each lift.
  - Ecology requires that the area be closed to the public for 3 years.

Should the full decommissioning of the sewage lagoon be postponed until 2006, it will be necessary to comply with all timing restrictions and best management practices (BMPs) identified in this EA.

#### **2.1.4 Improvements to the Electrical Power and Telephone Systems**

Electrical power service within the Park entrance area and campground Pod 1 will be upgraded from a single-phase, direct buried system to a three-phase primary distribution system, and the RV site will receive 50-amp service. In Pods 2 and 3, electrical service will be provided by a single-phase system.

The Park entrance area, which includes the contact station, residences, maintenance shops, and the pump stations, is on a single-phase electrical underground primary service. The current system is over 30 years old and “direct buried,” a type of system that does not last as long as duct bank and manhole systems. The current power supply to the campgrounds is transmitted via overhead power lines coming into the campgrounds from North Head Lighthouse to the north. The power lines are underground between Pods 1 and 3.

The capacity of the existing system for the RV camping area is currently inadequate for the projected demand and loads. The shortfall is primarily because of the transformers and the 120-volt circuits to each campsite. The installation of the new system will include a 50-amp circuit for each RV site. The new power distribution system will consist of 9,200 linear feet of buried conduit between the Park entrance and the three campground pods, via McKenzie Head Road. The conduit will be installed in the same trenches as the sewer line, within the road prism. Where the sewer line leaves the road prism just before the intersection of McKenzie Head Road and Campground Road, the electrical conduit will follow the water line north on Campground Road. It will access campground Pods 1 and 2 not via the access road, but via a 410 linear foot line running due west from Campground Road to Hookups pump station in Pod 1. Horizontal directional drilling will be used to install this line. Pacific County Public Utility District (PUD) No. 2 will be installing the conduit, vaults, electrical cable, and transformers in the trenches provided by this project. The PUD will remove the old power line, along with its two overhead poles, after the new power system is completed. The pole at the North Head Lighthouse housing facility will be

pulled down and removed. The pole on the beach north of campground Pod 3 is inaccessible by vehicle, so it will be cut down and left with the other driftwood in this area.

Telephone service will be extended to the comfort stations in all three campground pods, and will involve approximately 8,100 linear feet of telephone conduit. The new conduit will be trenched with the new water service. In Pods 2 and 3, only the comfort stations on the west side of the pods will receive pay phone service (Figure 8).

### **2.1.5 Other Construction Activities**

The 60 gravel RV campsites in Pod 1 will be paved, which will encompass a 49,500-square-foot area. The materials required include 312 cubic yards of asphalt concrete pavement underlain by 1,100 cubic yards of crushed rock base course.

### **2.1.6 Project Design Features**

#### **2.1.6.1 Construction Timing and Sequencing**

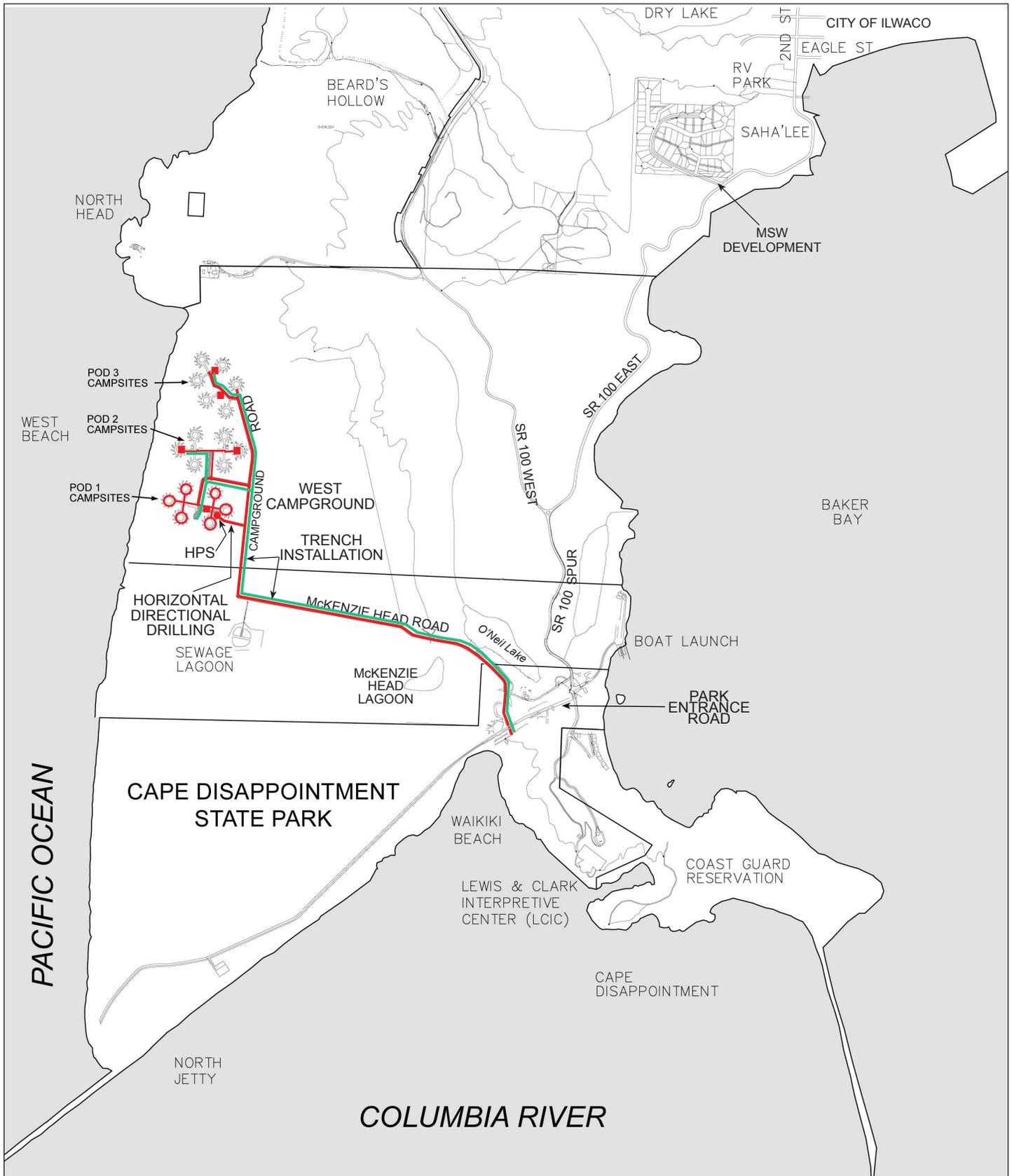
Construction of Phase 2 has been scheduled to avoid critical breeding/nesting seasons associated with protected species. At issue are breeding/nesting timing restrictions for bald eagles (January 1 to August 15) and marbled murrelets (April 1 to September 15). Construction will be scheduled to occur from September through December for both 2004 and 2005. Because of the constrained construction window, construction activity sequencing, and project funding, some Phase 2 activities will be deferred to 2005 for completion. Whether occurring in 2004 or 2005, all construction will be completed by December 31 of each year. The project activities for Phase 2 have been further broken out by two stages, and if funds are available upon project initiation, all work in the campground pods will take place in Stage 1. However, if funds aren't available at the time of project initiation, some actions will be deferred to Stage 2. Stage 1 would occur in the fall of 2004, while Stage 2 would occur in the fall of 2005. A description of both stages is provided below.

#### **Stage 1 - Fall 2004**

- Installation of water lines 4 inches and larger.
- Installation of sewer force main between the Hookups pump station in Pod 1 and the Park entrance.
- Installation of two grinder pump stations.
- Partial dismantling of the Waikiki pump station.
- Installation of new electrical system, including to all three campground pods.
- Installation of telephone system.
- If funding and construction scheduling allow it, completion of hookups to campsites; otherwise, the final installation will take place in Stage 2.

#### **Stage 2 - Fall 2005**

- Installation of 1-inch water lines in the three campground pods.
- Installation of gravity sewer between the Hookups pump station in Pod 1 and Pod 3.
- Paving of the 60 gravel RV campsites in Pod 1.
- Decommissioning of the sewage treatment lagoon.



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- Electrical
- Telephone
- Comfort Station
- HPS = Hookups Pump Station

**Figure 8**  
**Cape Disappointment State Park**  
**Telephone and Electrical Service**  
**Improvements**

The full decommissioning of the sewage treatment lagoon is scheduled for completion during fall 2005. However, due to funding and schedule constraints, final decommissioning may include work in fall 2006. This assessment assumes that all avoidance and minimization measures defined for Phase 2 applies to all actions, regardless of when they occur. Should the full decommissioning of the lagoon be postponed until fall 2006, it will be necessary to comply with all timing restrictions and BMPs identified in this EA.

Certain activities associated with project construction under Stages 1 and 2, particularly those that do not involve heavy equipment, material hauling, or excessive noise levels, may occur during the restricted breeding season, as such activities would not increase the level of disturbance or adverse effect. Such activities could include:

- Temporary bypass pumping.
- Pulling of power and/or telephone cables into buried conduits.
- Mechanical and electrical work to replace equipment inside the Hookups pump station.
- Roadway striping.
- Hydroseeding.

#### **2.1.6.2 Locations of Construction Activities**

Construction activities will take place primarily within the existing road prism. Where construction activities must cross natural or environmentally sensitive areas, special methods of pipe installation as described in Section 2.1.7.2 will be used. The areas within the road prism involve Park Entrance Road, McKenzie Head Road, Campground Road, and interior roads in the West Campground. In these locations, open trench excavation will be used for installing the utility lines. Trenching will also be used to install the new gravity sewer between the trailer dump and new Waikiki grinder pump station, and around the individual campground sites where water and sewer will be installed. While these areas are not within the road prism, they are primarily previously developed areas.

In areas outside the road prism and in or adjacent to natural areas, slip-lining and pipe-bursting will be used. Between Manhole 4 in the Park entrance area and the intersection of Park Entrance Road and McKenzie Head Road, the new sewer force main will be slip-lined into the existing gravity sewer line. Between the intersection of the lagoon access road and McKenzie Head Road, and the Hookups pump station in Pod 1, the force main will be pipe-burst. The gravity sewer extending north from the Hookups grinder pump station to Pod 3 will also be pipe-burst. The water main between the meter at SR 100 Spur and McKenzie Head Road will be installed using the pipe-bursting method. A third alternative method to trenching will be used at the steel culvert on McKenzie Head Road, where horizontal directional drilling is required to install lines beneath the culvert. This method will also be used to install the 410 linear feet of power conduit between Campground Road and the Hookups pump station.

#### **2.1.6.3 Pipe-Bursting, Slip-Lining, and Horizontal Directional Drilling**

Three primary installation methods for pipe replacement will be utilized to replace pipes in environmentally sensitive areas to reduce or eliminate trench excavation: pipe-bursting, slip-lining, and horizontal directional drilling. The pipe-bursting method requires a cable to be threaded through the existing pipe. A cone-shaped cutter head is attached to the cable, and the new pipe is fitted to the rear of the cutter head. The cutter head and pipe assembly is then pulled back through the existing pipe, bursting the old pipe and forcing the broken pipe pieces outward; the new pipe is pulled into place as the cutter head moves forward. By this method, pipes can be replaced and enlarged up to two sizes in diameter

without excavating a trench. The only excavation would be for access pits at both ends of the pipe replacement. The length of pipe replacement that can be pipe-burst is a factor of the pipe size, the soil type, the type of pipe being burst, and the capacity of the pulling machine. With the slip-lining method, a smaller pipe is inserted into a larger existing pipe. After the new pipe has been connected to another existing line, the cable used for pulling the smaller pipe is pulled back out of the system. Only one area of excavation is required for this method. Horizontal directional drilling is similar to well drilling except that it can be directed by the cutting tool at the tip of a drilling rod. The drilling rod enters the starting hole at an incline and is directed as it is pushed forward. The hole behind the drilling head is kept open with drilling mud, usually bentonite that is injected behind the drilling head. A pipe is then connected to the end of the drilling rod and pulled into the hole and back to the drilling machine. It is possible to mount the drill rig on the ground and begin the drilling without any additional excavation. The drill head can be directed to exit the surface without any excavation as well.

#### **2.1.6.4 Utility Trenching**

Trenching for the water and sewer utilities will be excavated by a tractor-mounted backhoe to about 3.5 feet in depth. Three inches of imported pipe bedding material will be placed in the bottom of the trench and leveled for the pipe. The pipe will be installed and checked for alignment. Next, more pipe bedding material will be installed and compacted around the pipe. Finally, the power or telephone conduits, toning wire, and warning tape will be installed, and the trench will be backfilled and compacted in 6-inch lifts. The trenching moves continuously with the backhoe, excavating ahead of the crew installing the pipes, conduit, pipe bedding, and backfilling. The contractor would not be allowed to have more than 100 feet of trench open at any one time (Figure 9).

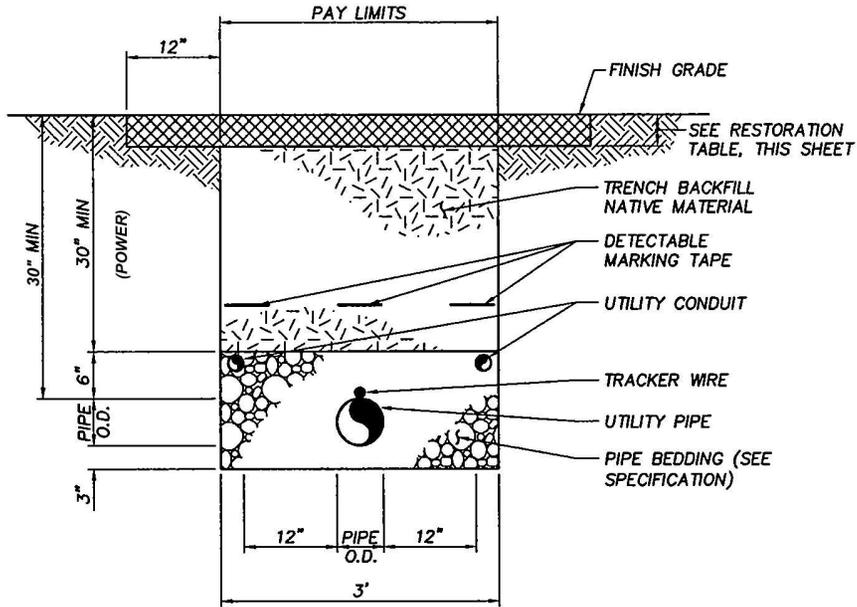
#### **2.1.6.5 Excavation and Fill Quantities**

Approximately 39,000 square feet of land will be disturbed for 13,000 linear feet of trenching in the road prism and shoulders, and 6,300 square feet of land will be disturbed for 6,000 linear feet of trenching in developed areas of campground pods. This trenching will require excavation of 6,700 cubic yards of soil, imported fill in the form of approximately 700 cubic yards of crushed base course, and 1,700 cubic yards of pipe bedding material. Native backfill required will be 5,300 cubic yards.

Construction of the two grinder pump stations will disturb 400 square feet of land and require excavation of 120 cubic yards of soil and 120 cubic yards of native backfill. The paving of the 60 gravel RV campsites in Pod 1 will cover 49,500 square feet, which will require 312 cubic yards of asphalt-concrete pavement, underlain by 1,100 cubic yards of crushed rock base course. There will be no net change to impervious surfaces from this action. Decommissioning the sewage treatment lagoon will disturb approximately 70,000 square feet of previously impacted soil to level the surrounding dike and remove the sand filter drain field. For this action, 7,700 cubic yards of material from Phase 1 will be used as fill.

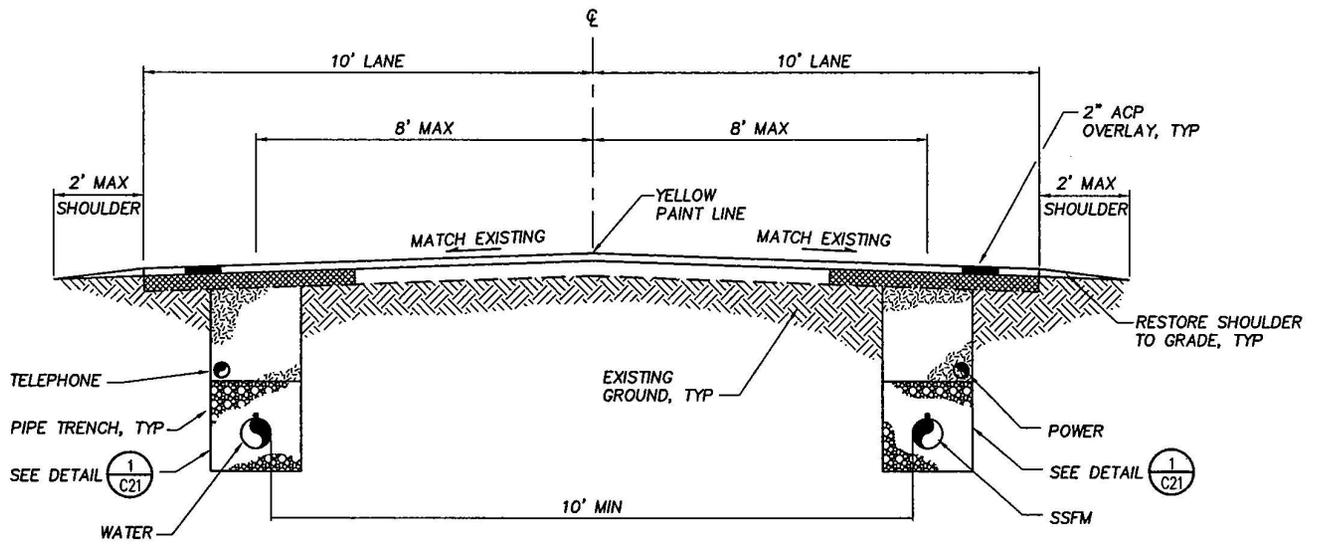
### **2.1.7 Mitigation Measures of the Proposed Action Alternative**

This section identifies the planned mitigation measures for the Proposed Action Alternative, which will be implemented to minimize potential impacts.



**SINGLE PIPE TRENCH**

**DETAIL**  
NO SCALE



**TYPICAL ROADWAY SECTION,  
McKENZIE HEAD ROAD**

**DETAIL**  
NO SCALE

**Figure 9  
Trench Details**

### **2.1.7.1 Geology/Soils/Topography**

Implementing BMPs during construction, especially regarding exposed and stockpiled soils, would help reduce the erosion of fine-grained soils such as silt and sand due to wind and water processes and the transportation of eroded soils off site by wind and surface water. To minimize the potential impacts of erosion and sedimentation, the following mitigation measures will be implemented:

- Clearing limits or required buffers shall be staked in the field.
- Erosion control measures shall be in place prior to any clearing, grading, or construction. These control measures will be designed to prevent soil from being carried into surface water by stormwater runoff.
- Soil in stockpiles will be stabilized or protected with sediment-trapping measures to prevent soil loss, and will be covered with plastic sheeting. All exposed areas of final grade or areas that are not scheduled for work for more than 30 days should be stabilized within 10 days during the period from April 1 to October 31, or immediately during the period from November 1 to March 31.
- Straw, jute matting, or plastic sheeting will be placed over disturbed earth areas during rainy periods.
- Silt fencing will be installed around cleared areas (such as for the grinder pump stations) during construction.
- A permanent vegetative cover would be established on cleared areas at final grade if they are not otherwise permanently stabilized.
- Shoveling or sweeping the equipment on a regular basis will minimize sediment tracking by construction vehicles onto paved public roads.

The contractor shall develop a hazardous material management plan (HMMP), which, at a minimum, includes and addresses the following:

- Site description and drawing that indicates the location of equipment and material storage areas, location of fueling areas, and proximity to storm drainage areas.
- Hazardous materials contractor personnel will be available 24 hours a day to administer and respond to HMMP requirements. Information shall include contact name, phone and fax numbers, and address.
- An inventory list of all known hazardous materials to be used during all phases of the construction project.
- Materials Safety Data Sheets shall be included in the HMMP for all materials on the hazardous materials list.
- Identification of containers with a legible label containing the material's product name, as was written on the material's original container label.
- Storage and handling of hazardous material containers. All materials shall be stored in secondary containment with a minimum capacity of 110 percent storage volume of the largest container. Container lids shall be secured to prevent spills or leaking and shall be stored under waterproof covering.

- Implementation of hazardous material spill prevention methods, including material transfers, vehicle and equipment fueling, vehicle and equipment maintenance, small engine fueling and maintenance, equipment storage, and spill prevention kits.
- The HMMP shall contain information on how the contractor shall control and respond to hazardous material spills. At a minimum, the contractor's employee responsible for the spill must take appropriate immediate action to protect human health and the environment.
- The HMMP shall contain information on how the contractor shall characterize, clean up, and remove all hazardous material and waste generated from contractor operations.

### **2.1.7.2 Wetlands/Vegetation**

The following avoidance and minimization techniques are recommended for construction occurring near drainages, streams, and depressions to avoid impacts to potential wetlands and waters of the State/U.S.

- No work will be done within the ordinary high water mark of streams; otherwise, a permit may be required.
- Where new facilities are located near wetlands, BMPs such as construction barrier fencing and sediment control fences (or other appropriate sediment control devices) will be installed upland of, or at the edge of, wetlands prior to any construction work.
- No vegetation will be cleared beyond the barrier fences, and no access by construction personnel or vehicles will be allowed.
- Any accidental fill within wetlands will be removed immediately using hand tools, and an assessment of impacts will be completed by a biologist to determine if restoration is required.
- Appropriate native vegetation (as determined by a biologist or other appropriate personnel) will be installed in disturbed areas after construction is completed.
- Sediment control measures will remain in place until construction is completed and vegetation has been restored in the affected areas.
- A temporary erosion and sediment control plan will be implemented for the entire project. The plan will include monitoring of sediment control measures and immediate repair of any failures of the measures.
- Vehicles will be maintained and fueled at least 100 feet from any wetland boundary.
- A comprehensive plan for treatment of spills will be prepared and available on site.
- All construction staging will be confined to existing developed areas.

### **2.1.7.3 Water Quality/Floodplains**

When correcting BMPs are used, minimizations of stormwater flows, prevention of soil erosion, capture of water-borne sediment that has been unavoidably released, and protection of water quality from on site pollutant sources is achievable. The following construction BMPs will be used for stormwater control:

- Using swales, trenches, or drains to divert stormwater runoff away from disturbed areas (during construction).
- Maintaining all construction equipment in good working order to minimize the risk of fuel and fluid leaks or spills.

- Developing a spill containment plan and having the necessary materials on site prior to and during construction. The spill prevention plan will state that petroleum products, industrial chemicals, and similar toxic or volatile materials shall be stored in durable containers approved by the engineer and located in areas so that any accidental spillage will not drain into any water. Substantial quantities of such materials shall be stored in an area surrounded by containment dikes of sufficient capacity to capture an aggregate capacity of all tanks.
- Minimizing soil disturbance and reseeding disturbed areas as soon as practical.
- Developing an erosion and sediment control plan will comply with the specific requirements of Pacific County codes and ordinances pertaining to construction practices and temporary erosion control and sediment control measures and methods as they apply to work performed for this action. Activities will comply with all temporary erosion control procedures and requirements outlined and/or specified on the County-approved plans, specifications, and final construction permit(s). Erosion control materials will include:
  - Silt fence of Permea-Tex silt control fence, or approved equal.
  - Quarry spalls that will be in accordance with Washington State Department of Transportation Standard Specification (8-inch maximum size, 3/4-inch minimum [10 percent passing] size).
  - Temporary silt fence that will be applied on either side of McKenzie Head Road, around the sewage lagoon, in designated areas along Campground Road and Pod 1 campsites, and around all areas of excavation (excluding trend excavation within a roadway prism).
  - Filter fabric fences that will be removed when they have served their purpose, but not before the upslope area has been permanently protected and stabilized.

#### **2.1.7.4 Fish and Wildlife**

To minimize potential impacts, BMPs for erosion and stormwater runoff would be implemented and include:

- Installing temporary sediment control devices such as silt fencing or sediment traps.
- Minimizing soil disturbance.

To minimize potential disturbance of wildlife from construction-related noise, mitigation measures would include:

- Limiting construction to daylight work hours, including 2 hours after sunrise and 2 hours before sunset (such as between the hours of 7 a.m. and 7 p.m.), to minimize noise impacts to sensitive wildlife species, mainly marbled murrelets.
- Installing and maintaining sound attenuation devices and mufflers on all construction equipment and vehicles.

#### **2.1.7.5 Protected Species**

To minimize potential disturbance of protected species from construction-related noise, mitigation measures would include:

- Avoiding construction activities during the critical breeding season for marbled murrelets (April 1 through September 15) and bald eagles (January 1 through August 15). With USFWS approval, construction may occur as late as January 31.

- Limiting construction to daylight work hours, including 2 hours after sunrise and 2 hours before sunset (such as between the hours of 7 a.m. and 7 p.m.), to minimize noise impacts to sensitive wildlife species, mainly marbled murrelets.
- Installing and maintaining sound attenuation devices and mufflers on all construction equipment and vehicles.
- Additional measures to reduce the risk to marbled murrelets from potential nest predators (jays, crows, and ravens) include minimizing the amount of trash and unattended food in work areas.

#### **2.1.7.6 Air Quality and Noise**

##### **Air Quality**

Construction BMPs will be implemented to minimize short-term air quality impacts (i.e., dust and emissions), including the following measures:

- Water will be used to control dust on the site, but care shall be taken to avoid causing erosion.
- Ground disturbance will be minimized to the extent possible.
- Trucks transporting cut or fill material will be covered or have adequate freeboard to prevent soil particles from blowing off during transport.
- Excess dirt, dust, and debris will be removed from roadways.
- Disturbed soil in the lagoon area will be revegetated as soon as practicable.

##### **Noise**

Construction activities would generate noise similar to those levels stated in Table 10, but it will be minor and intermittent, and limited in scope and duration. Although sounds created by the installation or repair of essential utility services are exempt from the provisions of WAC 173-60-040, measures to minimize noise impacts will be implemented during project construction. These measures will include:

- Limiting construction to daylight work hours, including 2 hours after sunrise and 2 hours before sunset (such as between the hours of 7 a.m. and 7 p.m.), to minimize noise impacts to sensitive wildlife species, mainly marbled murrelets and bald eagles.
- Installing and maintaining sound attenuation devices and mufflers on all construction equipment and vehicles.
- Turning off equipment when not in use.
- Using only well-maintained and properly functioning equipment and vehicles.

#### **2.1.7.7 Historic Properties and Cultural Resources**

A copy of this EA, together with the February 2003 AINW intensive cultural resource inventory, will be provided to the Washington SHPO with a request for concurrence. The Chinook Indian Tribe, headquartered in nearby Chinook, Washington, is not a federally recognized tribe, but they will be provided a copy of the EA and FONSI for review, and they were furnished a copy of the earlier USCG programmatic EA prepared in 2002 and the Phase 1 EA for Cape Disappointment State Park Utility Infrastructure Improvements prepared in 2003 [36 CFR Part 800.3(f)]. The Shoalwater Bay Tribe will also be provided with a copy of the EA and FONSI for review.

The intensive cultural resource inventory conducted at the Park on February 21, 2003, by Archaeological Investigations Northwest, Inc. (AINW 2003a), identified a number of areas that required further evaluation and testing. With the exception of the Park entrance, the project area for the proposed Phase 2 actions has not been identified as containing a moderate to high probability for cultural resources. However, if cultural or paleontological resources are discovered in the project area during utility installation activities, changes in configuration may be needed to avoid the resource. Furthermore, if cultural resources cannot be avoided, evaluation with the Washington State Office of Archaeology and Historic Preservation will be initiated. The evaluation will focus on the following measures: (1) impact avoidance, (2) data recovery, (3) site redesign, (4) site relocation, and (5) site hardening. In addition, a proposed mitigation plan for the project, with impact avoidance being the first priority, will be developed prior to continuation of the project.

WSPRC will provide a professional archaeologist to monitor construction at the Park entrance associated with dismantling the Waikiki pump station, ground disturbance associated with the two new grinder pump stations, and extending the 300 linear feet of gravity sewer (open cut excavation between the new Waikiki grinder pump station and the trailer dump). These actions would cut through layers of soil possibly yielding significant cultural resource information. Site monitoring activities at the Park entrance associated with the Proposed Action would ensure that unmitigated resource damage, if any, would be avoided and that archaeological resources, if present, would be protected.

#### **2.1.7.8 Land Use and Recreation**

Revegetate disturbed areas following construction to minimize soil erosion and to restore useable areas suitable for land use and recreation needs.

#### **2.1.7.9 Infrastructure**

Construction activities relating to trenching within the road prism will require the closing of some road lanes or detours. To ensure that police, fire, and emergency medical vehicles retain the ability to pass through the area, the following measures will be taken during construction:

- Signs, steel plates, barricades, warning lights, and/or traffic cones will be used at all openings, obstructions, detours, or other hazards on the roadway, as necessary, to ensure the safety of pedestrians, bicyclists, and vehicles.
- Personnel will be provided to direct traffic around and through the construction area so that traffic moves smoothly.

## **2.2 ALTERNATIVE 2 (NO ACTION)**

Under the No Action Alternative, the antiquated water and sewer systems would continue to operate, resulting in continuous upkeep and repair and the potential for system failure, particularly in regard to sewer, due to continuing coastal erosion problems. In addition, the inadequate potable water and capacity concerns would continue, and the risk to Park users and impacts on human health and facilities would remain. Moreover, the following utility improvement activities would not occur:

- Replacement of water and sewer lines in the vicinity of the campgrounds and Park entrance.
- Construction of additional new water and sewer lines near the Park entrance.
- The upgrading of two sewage pump stations and associated force mains.
- Decommissioning of the sewage lagoon.

- Upgrades to the Park's electrical system.

## **2.2.1 Mitigation Measures of the No Action Alternative**

This section identifies the mitigation measures for the No Action Alternative that, if implemented, would help minimize potential impacts.

### **2.2.1.1 Geology/Soils/Topography**

Mitigation would include review of parkwide operational and maintenance plans to address the continued wave and shoreline erosion risks and the vulnerability of existing utilities.

### **2.2.1.2 Wetlands/Vegetation**

Mitigation would include review of parkwide operational and maintenance plans to address the continued wave and shoreline erosion risks and the vulnerability of existing utilities.

### **2.2.1.3 Water Quality/Floodplains**

Mitigation would include review of parkwide operational and maintenance plans to address the continued wave and shoreline erosion risks and the vulnerability of existing utilities.

### **2.2.1.4 Infrastructure**

Mitigation would include review of parkwide operational and maintenance plans to address the continued wave and shoreline erosion risks and the vulnerability of existing utilities.

## **2.3 OTHER ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL**

Alternative locations within the Park for construction of the utility improvements were investigated as part of the Fort Canby State Park Water and Sewer Feasibility Study (Study) (Gray and Osborne 2001). The goals of the Study included the following:

- Improve water system reliability, pressure, and fire flow capacity.
- Provide water supply to all current and planned water-using facilities at the Park.
- Decommission the sewage lagoon and transfer raw sewage to the City of Ilwaco for treatment and disposal.
- Discontinue the practice of being the sewer and water purveyor for the USCG Station Cape Disappointment.
- Construct the sewer and water facilities during the 2002–2004 biennium.
- Examine the possibility that the water transmission system(s) prior to the Park water meter would be owned and operated by the City of Ilwaco and that the wastewater conveyance system(s) after the final Fort Canby pump station(s) would be owned and operated by the City (Gray and Osborne 2001).

The Study evaluated the feasibility of two alternatives to upgrade the water and sewer utility systems at the Park. Alternative 1 is the Proposed Action under consideration in this EA (Section 2.1), and Alternative 2 was considered but eliminated from detailed analysis based on the evaluation of capital cost, operation and maintenance cost, and economic and environmental feasibility.

The Study and the feasibility of the alternatives were evaluated under SEPA, for which a determination of non-significance was issued. Alternative 2 included the installation of a new 6-inch sewer force main from a new main pump station located in the Waikiki Beach area of the Park to the City of Ilwaco (following SR 100 West). The sewer force main extended from the main pump station at Waikiki Beach to a point on SR 100 West (at Willows Road), with the gravity pressure main continuing to the City of Ilwaco (Gray and Osborne 2001). The total length proposed for this alignment was 21,000 linear feet.

In summary, Alternative 1 was the preferred route because the Park's Commission wanted to incorporate the sewer utility alignment with the Proposed Action for the water utility alignment. This also influences environmental feasibility, as the preferred route incorporates the water and sewer utility alignment routes, which would help reduce construction-related impacts and disturbance to the natural and built environment. Finally, Alternative 2 routes would cost approximately 13 percent more than those under Alternative 1 (assuming easements were feasible under Alternative 1).

## 3. AFFECTED ENVIRONMENT

### 3.1 GENERAL SETTING

#### 3.1.1 Parkwide

The Park is located on Cape Disappointment in southwestern Washington, where the Columbia River empties into the Pacific Ocean. Geology in the Park is characterized by a series of steep topographic rises such as McKenzie Head and North Head, and some of these headlands are over 250 feet in elevation. The coastal shoreline at the Park has been dramatically altered in historic period times by the construction of the North Jetty. Sand has accreted to the north of the jetty since 1913 and initially filled in the area from the southern tip of the jetty to North Head. Because damming of the Columbia River has reduced the river's capability to transport and deposit sand, this accreted land has been steadily eroding since the 1950s (AINW 2003a).

The climate at the Park is generally wet and mild, with little in the way of temperature and moisture extremes. Summers are dry and cool as central Pacific high pressure diverts storms north. Winter brings cyclonic storm systems that bring heavy rain and high winds. In terms of vegetation, the Park is characterized by Sitka spruce (*Picea sitchensis*) forests as well as stands of western hemlock (*Tsuga heterophylla*), western redcedar (*Thuja plicata*), and Douglas-fir (*Pseudotsuga menziesii*). Red alder (*Alnus rubra*) is common in recently disturbed areas, often with a dense understory consisting of plants such as salal (*Gaultheria shallon*) and sword fern (*Polystichum munitum*).

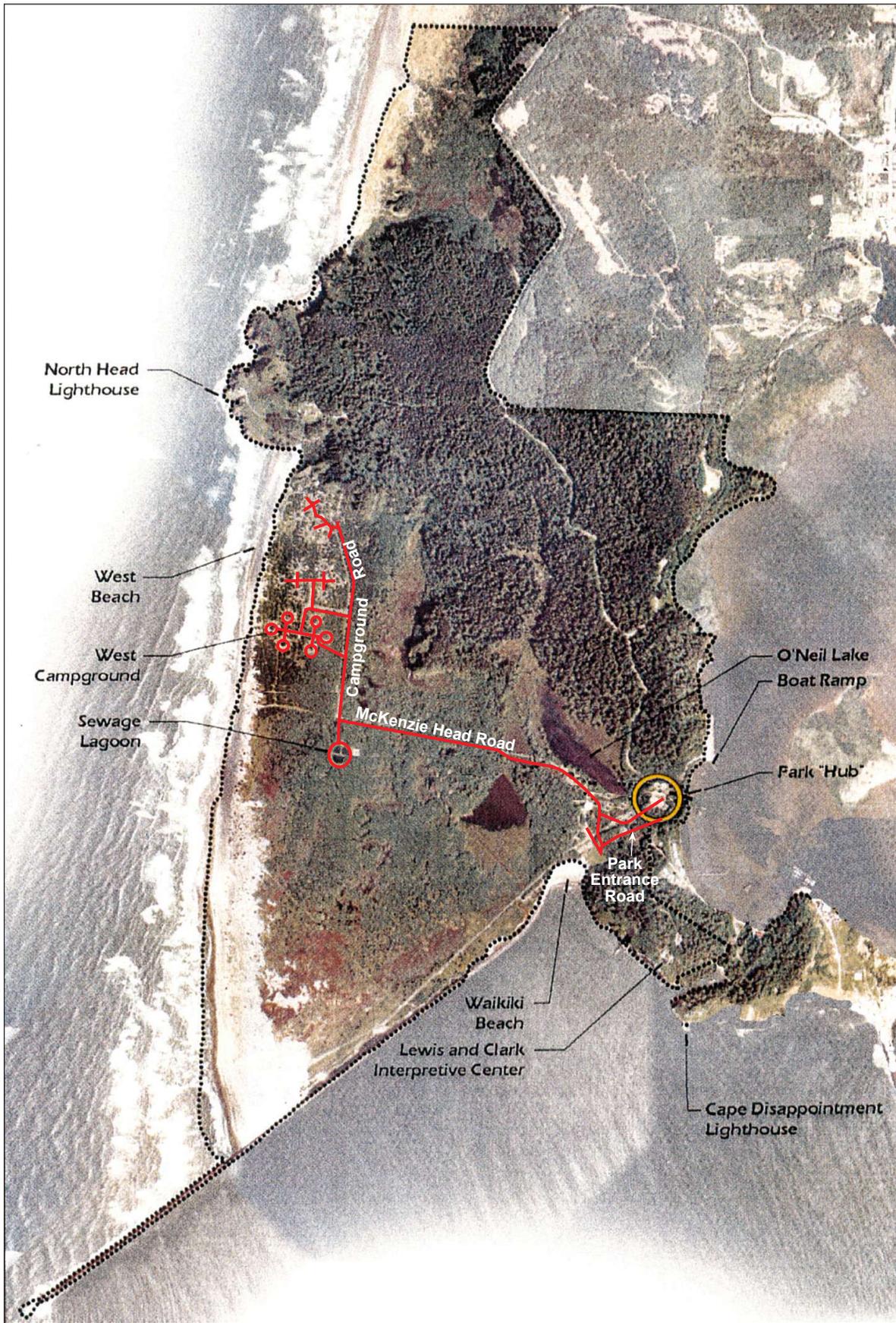
#### 3.1.2 Project Area

The project area is defined as the immediate work and construction area in the vicinity of the alignment for the Phase 2 utility infrastructure improvements (Figure 10). Overall, the majority of the proposed utility infrastructure improvements would take place within the existing road prism. The project area includes the Park entrance area, Park Entrance Road, McKenzie Head Road, Campground Road, the sewage lagoon and access road, and the interior roads of the three campground pods. Also included is O'Neil Lake and hauling routes along SR 100 within the Park boundaries, where construction-related truck traffic would occur. In the project area, the West Campground and Campground Road section of the alignment is on land owned by BLM, the sewage treatment lagoon and the majority of the McKenzie Head Road section is on WSPRC land, and the Park entrance section is on Corps land. The Corps has primary administrative jurisdiction over these lands by virtue of an 1852 military reservation; however, BLM shares jurisdiction with the Corps for these reserved public lands.

### 3.2 AFFECTED RESOURCES

#### 3.2.1 Geology/Soils/Topography

Cape Disappointment State Park is situated within the Willapa Hills physiographic region and is composed of sedimentary rocks from the lower Tertiary and unconsolidated deposits primarily from the Quaternary period. The Quaternary sediments are dominantly nonglacial and include alluvium and volcanoclastic, glacial outburst flood, and landslide and coastal deposits (USGS 1949).



**Figure 10**  
**Cape Disappointment State Park**  
**Existing Conditions**

Soils in the Park include Palix and Ilwaco silt loams and Yaquina loamy fine sand (USDA 1986). A vast majority of the Park is characterized by the Ilwaco soil type; however, Palix soils are found along the southern portion of the SR 100 Spur, and Yaquina soils are located near the Park entrance. These well-drained soils are relatively deep and coarse. Along the beach and interdunal area, the soils are sand and dune land, and deprived of nutrients. Along the coastal bluffs, silt loam and loamy fine sand, which are deep and well-drained soils derived from sandstone and shale, are the dominant soils.

Erosion of shoreline areas within the Park from natural littoral processes is a major problem, with 260 acres of uplands having been lost in the past 20 years. This erosion is expected to continue and threatens the Park's beach camping areas and sewage treatment lagoon. The site is located within the regional Cascadia Subduction Zone, whose interface is capable of rupture during large-magnitude earthquakes, with associated subsidence and tsunami runup at lower elevations.

Topography within the Park ranges from sea level to over 350 feet above mean sea level (MSL). The southern portion of the Park, including the Park entrance, the SR 100 Spur, and the RV camping area, is relatively flat (0 to 75 feet MSL). The topography along North Head Lighthouse Road varies between 175 and 200 feet MSL for its entire length.

The roadway system within the Park generally consists of approximately 4 to 6 inches of asphalt concrete underlain by 6 to 8 inches of crushed rock base containing trace to some silt.

### 3.2.1.1 Hazardous Materials and Solid Waste

There are no known hazardous materials sites within the Park. It is possible that residual material from lead-based paint used on the lighthouse or older homes in the North Head Lighthouse and Beards Hollow areas could be present in the soils in those areas (WSPRC 2002b, 2003). However, as no work or ground disturbance would occur near the lighthouse or residences as part of the Phase 2 actions, no impacts from hazardous materials are expected.

Regarding solid waste, the decommissioning of the three-cell sewage lagoon near McKenzie Head Road is part of this project. As specified by the Washington State Department of Ecology, sewage sludge that meets the standards for classification as biosolids can be land applied as a beneficial use. Biosolids that meet this requirement are not classified as solid waste (WAC 173-308, Biosolids Management). As part of Phase 2 investigations, 12 biosolid samples were collected from the three cells in the sewage lagoon. Each cell was divided into quadrants. Using a biosolids sampling bailer, one sample was collected at a random location within each quadrant. Samples were analyzed for metals, fecal coliform, ammonia, Total Kjeldahl Nitrogen (TKN), nitrate nitrogen, nitrite nitrogen, and percent solids. Tables 2 and 3 contain the analytical results for biosolids sampled. The detected concentration levels of biosolid pollutants are well below the pollutant concentration limits set forth by the Washington Administrative Code (WAC 173-308-160), presented in the tables as Limits.

**Table 2. Cape Disappointment State Park Sewage Lagoon Biosolids Analytical Results**

Sample ID	Sample Date	Ammonia (mg/kg)	TKN (mg/kg)	Nitrate-Nitrogen (mg/kg)	Nitrite-Nitrogen (mg/kg)	Percent Solids	Fecal Coliform (MPN/g)
C1	6/18/03	3,710	30,200	ND	ND	3.58	8,550
C2	6/18/03	962	6,450	ND	ND	13.4	232
C3	6/18/03	211	3,840	ND	ND	21.1	19.1
Limits <sup>1</sup>							2,000,000

mg/kg = milligrams per kilogram  
 MPN/g = most probable number per gram of total solids  
<sup>1</sup> Washington Administrative Code 173-308-170

TKN = Total Kjeldahl Nitrogen  
 ND = Not Detected  
 Source: Saul 2003

**Table 3. Cape Disappointment State Park Sewage Lagoon Biosolids Metals Analytical Results**

Sample ID	Sample Date	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Molybdenum (mg/kg dry)	Nickel (mg/kg)	Selenium (mg/kg)	Zinc (mg/kg)
C1	6/18/03	3.47	ND	91.7	14.2	ND	ND	9.01	ND	381
C2	6/18/03	2.74	ND	18	17.3	ND	ND	4.83	ND	66.6
C3	6/18/03	1.41	ND	3.23	2.25	ND	ND	1.98	ND	26.1
Limits <sup>2</sup>		41	39	1,500	300	17	NA	420	100	2,800

Source: Saul 2003

mg/kg = milligrams per kilogram

ND = Not Detected

NA = Not Applicable

<sup>1</sup> Limits = Monthly average concentration allowed per Washington Administrative Code 173-308-170

### 3.2.2 Wetlands/Vegetation

#### 3.2.2.1 Vegetation

Cape Disappointment State Park hosts a variety of unique habitat types, including headland bluffs, dunes, shorelands, forests, and wetlands that support a diversity of vegetation. The Park is located within the Sitka spruce (*Picea sitchensis*) forest zone, which is characterized by proximity to the Pacific Ocean; a moderate climate; generally low elevation (below 450 feet); and dense, productive conifer forests. Topographically, the western and southern portions of the Park are relatively flat and generally below 75 feet in elevation; the relief and elevation increase along the northern and eastern areas of the Park. The principal plant community types within the Park follow the rise in topography, with wetlands predominating in the southern and western portions of the Park and upland forests prevalent to the east and north. Thirteen plant community types were identified in a recent habitat survey of the Park. Botanical surveys have identified more than 400 vascular plant species within the Park, including three rare species. Sitka spruce forest (approximately 600 acres) is the predominant upland cover type and is found primarily on the east side of the Park. Extensive estuarine and palustrine wetland plant communities are also found within the Park.

#### Rare Plants

Currently, no federally listed plant species are known to occur in the Park; however, rare plant surveys conducted in 2003 found three species of plants designated as special status species by the state of Washington (Table 4). These three plants are coyote brush (*Baccharis pilularis*), Ocean-bluff bluegrass (*Poa unilateralis*), and floating water pennywort (*Hydrocotyle ranunculoides*). Rare plants known to occur in the region, but not previously identified within the Park, are also shown in Table 4. In addition, the Washington State Department of Natural Resources (WDNR) Natural Heritage Program has identified several vegetation communities that are of conservation significance: Sitka spruce forest, portions of native coastal headland herbaceous vegetation, and saltwater and freshwater wetlands.

A small population of coyote brush, classified as endangered by Washington State, was recently found in the Park on sea cliffs and in open dry sites on sand. Although this plant has a wide ecological and geographic range in Oregon and California, this recently discovered population is the only known coyote brush in Washington, and represents the northernmost known location for this plant. Coyote brush is a colonizer of disturbed areas, because its wind-dispersed seeds often travel long distances. Coyote brush seeds may have arrived at Cape Disappointment State Park in fill used in jetty construction, or the plant may have colonized the Park during the disturbance and habitat changes associated with the construction.

**Table 4. Rare Plants Found in Cape Disappointment State Park and the Vicinity**

Common Name	Scientific Name	Status	
		Federal <sup>1</sup>	State of Washington <sup>2</sup>
<b>Rare Plants Occurring Within Cape Disappointment State Park</b>			
Coyote brush	<i>Baccharis pilularis</i>	N/A	E
Ocean-bluff bluegrass	<i>Poa unilateralis</i>	N/A	T
Floating water pennywort	<i>Hydrocotyle ranunculoides</i>	N/A	S
<b>Rare Plants That May Occur in the Vicinity of Cape Disappointment State Park</b>			
Pink sandverbena	<i>Abronia umbellata</i> ssp. <i>breviflora</i>	SOC	N/A <sup>3</sup>
Tall bugbane	<i>Cimicifuga elata</i>	SOC	N/A <sup>4</sup>
Scurveygrass	<i>Cochlearia officinalis</i>	N/A	S
Pink fawn-lily	<i>Erythronium revolutum</i>	N/A	S
Bog clubmoss	<i>Lycopodiella inundata</i>	N/A	S
Alaska plantain	<i>Plantago macrocarpa</i>	N/A	S
Loose-flowered bluegrass	<i>Poa laxiflora</i>	N/A	T
Great polemonium	<i>Polemonium carneum</i>	N/A	T
Soft-leaved willow	<i>Salix sessilifolia</i>	N/A	S
Bear's-foot sanicle	<i>Sanicula arctopoides</i>	N/A	T
Water pimpernel	<i>Samolus parviflorus</i>	N/A	S

<sup>1</sup> Federal status is denoted as E = Endangered, T = Threatened, C = Candidate, P = Proposed, SOC = Species of Concern, N/A = no federal status.

<sup>2</sup> Washington state status designators include the same classifications as the federal status, with the addition of S = Sensitive.

<sup>3</sup> Listed as Endangered in Oregon.

<sup>4</sup> Listed as Candidate in Oregon.

Ocean-bluff bluegrass, classified as threatened by Washington State, occurs on steep, basalt cliffs in the Park. This plant also occurs along the coast of Oregon and California, but the Park site comprises the only known population in Washington. The populations of this species in Washington are dependent on open rock habitat, which makes this population especially vulnerable to damage from rock climbers and scramblers.

Floating water pennywort, classified as sensitive by Washington State, is locally abundant on the Long Beach Peninsula and Clatsop Plains and can be found in lakes and ponds that are more than a few hundred yards from the ocean and are not saline. This species occurs in virtually every non-saline lake, pond, and wetland in the Park.

### **Vegetation Communities of Conservation Significance**

There are approximately 600 acres of Sitka spruce forest within the Park, with four distinct forest vegetation associations: Sitka spruce/salal; Sitka spruce/salal-salmonberry (*Rubus spectabilis*); Sitka spruce/salmonberry; and Sitka spruce/sword fern. The largest contiguous portion of forest is located near the center of the Park and has relatively narrow road corridors transecting its interior. One smaller patch is located along the northeast edge of the Park and the other is located along the western side of the isthmus just north of the USCG station. The four Sitka spruce associations, taken together, form the best example of outer coastal Sitka spruce forest in Washington south of Olympic National Park, and have been designated by WSPRC as a Natural Forest Area.

The Sitka spruce forest contains habitat for bald eagles (*Haliaeetus leucocephalus*) and marbled murrelets (*Brachyramphus marmoratus*), both federally listed species whose habitat modifications are regulated under the ESA. Both Washington Department of Fish and Wildlife (WDFW) and USFWS consider this stand to be occupied by nesting murrelets. Removing or disturbing trees may be considered “take” and is prohibited without an incidental take permit from USFWS following the consultation requirements under Section 7 of ESA. No Sitka spruce forest is located within the Phase 2 project area; therefore, this habitat type will not be affected by project implementation.

The prominent coastal headlands, North Head and Cape Disappointment, are home to two other plant associations of high conservation significance. Both headlands support occurrences of red fescue (*Festuca rubra*) coastal headland herbaceous vegetation. This association is globally imperiled, and these occurrences are the only known locations of this association in the state. North Head is also one of only three known locations in Washington for the Pacific reedgrass (*Calamagrostis nutkaensis*)-blue wildrye (*Elymus glaucus*) association. This association is also considered globally imperiled, and the population on North Head is the only known occurrence on Washington’s southern coast. The coastal headlands have no regulatory protective status, but it is WSPRC’s mission to protect areas of statewide biological significance.

In addition to these upland communities, the Park also contains significant wetland plant communities. The shores of Baker Bay support a sandy, low-salinity marsh dominated by Lyngby’s sedge (*Carex lyngbyei*). There are only three known occurrences of this ecosystem in the state, one of which abuts the Park shoreline. Beard’s Hollow supports two low-elevation freshwater wetland associations: slough sedge (*Carex obnupta*)–Pacific silverweed (*Argentina egedii*) herbaceous vegetation and Hooker willow (*Salix hookerana*)/slough sedge–Pacific silverweed vegetation. Both associations are confined to dune systems on the outer coast and are either vulnerable or possibly imperiled in the state, as very few freshwater wetlands in Washington’s Pacific Northwest Coast ecoregion are found in such close association with the outer coastal dune system. Neither of these dune systems are located within the project area, and they will not be affected by project implementation. A more detailed description of wetlands in the project area can be found in Section 3.2.2.2.

## Non-Native Species

Although the park supports a rich mosaic of native vegetation communities, most in very good condition, a variety of introduced plant species have also been identified within the Park. English ivy (*Hedera helix*) is located in forests and along sea cliffs. Himalayan blackberry (*Rubus armeniacus*) and evergreen blackberry (*R. laciniatus*) are found in disturbed areas, along dunes, and in the forest. Scotch broom (*Cytisus scoparius*) is found on dunes, interspersed with wetlands, and along open seacliffs. Japanese knotweed (*Polygonum cuspidatum*) and Himalayan knotweed (*P. polystachya*) are found in areas associated with historic homesites, where they were probably planted as ornamental species. Yellow flag iris (*Iris pseudacorus*), tansy ragwort (*Senecio jacobaea*), and gorse (*Ulex eropaeus*) all occur in disturbed areas either on dunes, along the sea cliffs, or bordering the shoreline. Other non-native species identified in wetland areas include reed canarygrass (*Phalaris arundinacea*), purple loosestrife (*Lythrum salicaria*), and Eurasian watermilfoil (*Myriophyllum spicatum*). The WSPRC is in the process of drafting an integrated weed management plan that will establish thresholds and priorities for noxious weed control and develop control prescriptions for the entire Park. The plan will be available in draft form during the summer of 2004, and will include a thorough survey of the Park.

### 3.2.2.2 Wetlands

#### Parkwide

An extensive wetland system dominates the accreted areas of the Park (Figure 11). These wetlands formed behind dunes as the area was aggressively accreting from the headlands to today's shoreline, and they include forested, scrub shrub, emergent, and aquatic open water vegetation. Although an extensive riverine system connects a number of the wetlands, the only outflow for the wetlands is a ditch from McKenzie Head Lagoon to the eastern end of the North Jetty. The accreted dune area provides a complex of freshwater and saltwater wetlands. The accreted dune wetlands are interrupted to the north by the Park's sewage lagoon and, to a certain extent, by the Park's campgrounds; however, the majority of the wetland complex is undisturbed. The center of the accreted area wetlands and the wetlands along the base of the headlands support a mature wetland system with high habitat values.

Other wetland complexes are located at Beard's Hollow and along Baker Bay. The Beard's Hollow system is approximately 30 acres in size and is functionally isolated from the other wetlands in the park. The wetlands along the Baker Bay shoreline include several small saltwater marshes. These wetlands are relatively unaffected by recreational use. Wetlands in these two areas are outside the project area and will not be affected by project activities.

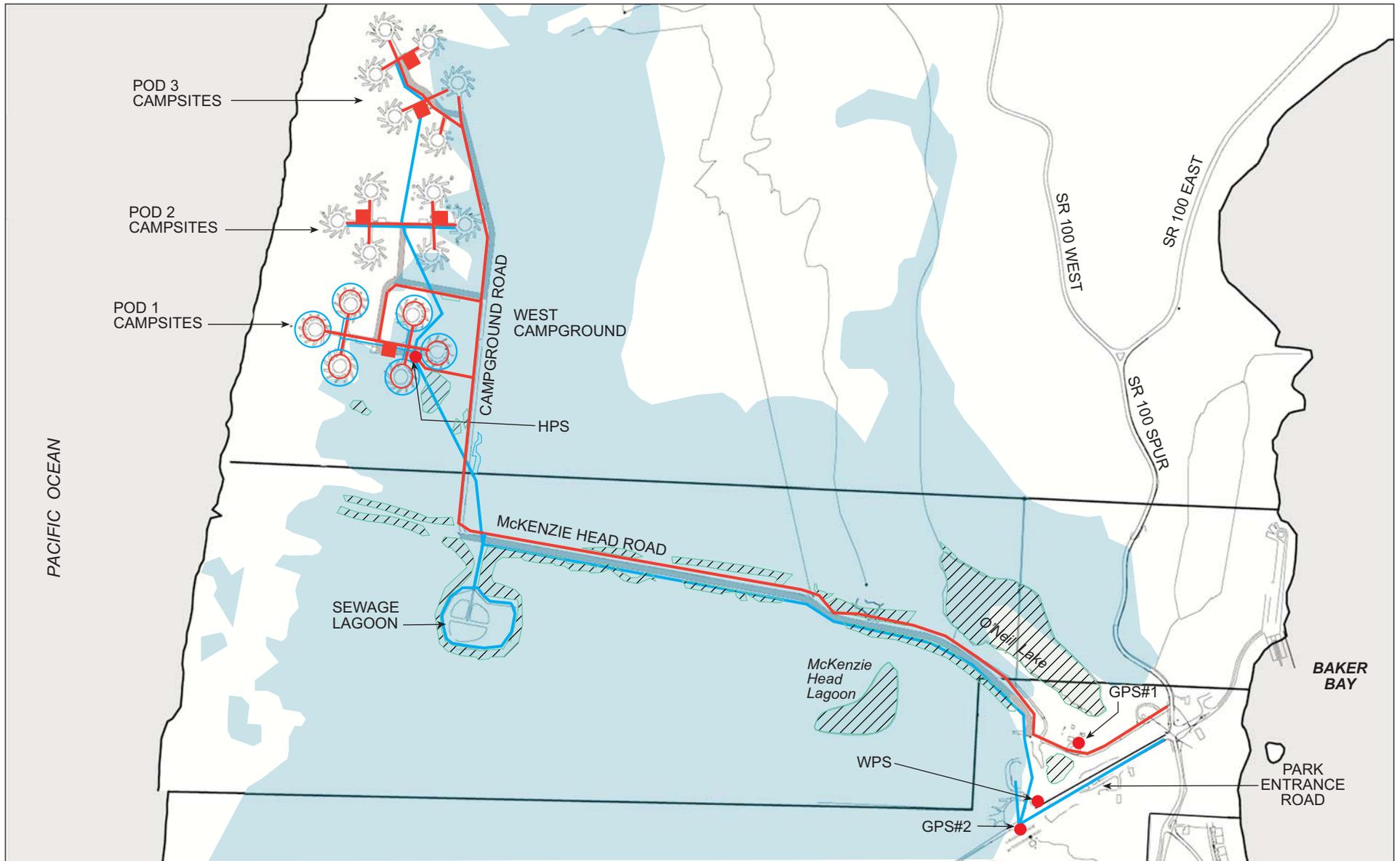
#### Wetlands in the Project Area

Wetlands in the project area are located on both sides of McKenzie Head Road and Campground Road. McKenzie Head Road crosses a mosaic of wetlands that are part of a larger complex of lakes and wetlands in the accreted area. Ponded water was observed in many areas on either side of the road (Parametrix 2003). Field reconnaissance found that the wetland edges generally extended to within 2 to 3 feet of the pavement. The wetland edge extended all the way to the pavement surface in some locations.

Many of the plants in the area are closely associated with wetlands. Generally, a red alder canopy with a slough sedge understory prevailed. Some edge species included western crabapple (*Malus fusca*) and cascara (*Rhamnus purshiana*). Some of the more common species within the wetlands included cow parsnip (*Heracleum lanatum*), willow (*Salix* spp.), buttercup (*Ranunculus* spp.), weedy grasses (*Agrostis* spp.), bracken fern (*Pteridium aquilinum*), sword fern, geranium (*Geranium* spp.), giant horsetail (*Equisetum telmateia*), red elderberry (*Sambucus racemosa*), and plantain (*Plantago* spp.).

Large areas of open water were present on either side of McKenzie Head Road and are part of a larger lake and wetland complex. Dominant vegetation in the open water areas included yellow pond lily (*Nuphar luteum*), duckweed (*Lemna minor*), rushes (*Juncus* spp.), and sedges (*Carex* spp.). The surrounding area is represented by Lyngby's sedge, soft rush, and scattered red alder. A mixed deciduous/coniferous forest extends beyond. Further along the road, more upland species are present, although one skunk cabbage (*Lysichiton americanum*) was seen.

Along Campground Road, dominant vegetation is characterized by a Douglas-fir and red alder canopy with a hairy manzanita (*Arctostaphylos columbiana*), sword fern, and sedge understory. A low area has overhanging branches and dead trees present in bare soil that appears to have been recently ponded. The edges of the forest include a few Douglas spirea (*Spiraea douglasii*), twinberry (*Lonicera involucrata*), and a light scattering of blackberry (*Rubus* spp.).



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**LEGEND**

Potential Wetlands and Waters Locations Identified by Reconnaissance in project area (Wetland Boundary Not Delineated)

National Wetlands Inventory (NWI) mapped palustrine wetlands

**Utility Improvement Routes**

Sewer Lines

Water Lines (Plus Electrical & Telephone)

Comfort Station

HPS = Hookups Pump Station

WPS = Waikiki Pump Station

GPS#1 = Contact Station Grinder Pump Station

GPS#2 = Waikiki Grinder Pump Station

**Figure 11**  
**Location of Potential Wetlands Within Project Area**  
**Cape Disappointment State Park Infrastructure**  
**Improvements - Phase 2**



### **3.2.2.3 Sewage Lagoon and Drain Fields**

Representatives from the Corps (Ron Wilcox and Gail Terzi, Seattle District Office) have confirmed that the sewage lagoon and the associated drain fields are exempt from Corps permitting requirements (Corps 2003).

## **3.2.3 Water Quality/Floodplains**

### **3.2.3.1 Surface Water**

The Park contains approximately 42,000 feet of saltwater shoreline along the Pacific Ocean Coast on the west and Baker Bay on the east, and 10,500 feet of freshwater shoreline along the mouth of the Columbia River to the south. Cape Disappointment is within the Long Beach Watershed and Water Resource Inventory Area (WRIA) 24 (Willapa Bay Basin).

Surface water within the Park includes the 40-acre O'Neil Lake and the 30-acre McKenzie Head Lagoon. O'Neil Lake is approximately 70 feet north of McKenzie Head Road, which is a section of the utility alignment in the project area. O'Neil Lake and McKenzie Head Lagoon are connected by a culvert under McKenzie Head Road. The campground area is approximately 285 feet east of the shoreline of the Pacific Ocean. There are also two small ephemeral creeks; however, the beds were dry during the field investigation. The source of water during the wet season is likely from groundwater infiltration, hillside seeps, or associated upgradient wetlands. None of these surface water bodies within the park has any connection to a larger water system. No water quality data is available for these water bodies, but O'Neil Lake is known to support large-mouthed bass (WSPRC 2002a).

### **3.2.3.2 Floodplains**

The Federal Emergency Management Agency (FEMA) maps floodplain boundaries for most counties throughout the United States; however, the Park is one of several areas within Pacific County that the agency did not map. Pacific County has included the Park's low-lying campground as a 100-year floodplain in its Flood Control Zone District No. 1 map (Map 8) dated June 11, 1999, as the elevation of the area renders it susceptible to coastal flooding. The District administers flood control on the Long Beach Peninsula north of the Park. All streams within the Park appear to be ephemeral, with no connections to larger stream or water body systems.

## **3.2.4 Fish and Wildlife**

A number of birds and mammals common to marine environments may be found in the project area. During a project site visit, a few of the birds observed included white-winged scoters (*Melanitta fusca*), surf scoters (*Melanitta perspicillata*), pelagic cormorants (*Phalacrocorax pelagicus*), Brandt's cormorants (*P. penicillatus*), herring gulls (*Larus argentatus*), Steller's jays (*Cyanocitta stelleri*), great blue herons (*Ardea herodias*), and brown pelicans (*Pelecanus occidentalis*) (Parametrix 2003b). Priority Habitats and Species (PHS) data from WDFW indicate that Baker Bay is a waterfowl wintering concentration area where a large number and diversity of water birds can be found (WDFW 2004) and is also an important habitat area for wintering bald eagles. Although the North Jetty is outside of the action area, PHS data describe the jetty as another concentration area for marine birds, including brown pelicans.

Other wildlife found in the project area include large and small mammals such as deer (*Odocoileus* spp.), opossum (*Didelphis virginiana*), raccoons (*Procyon lotor*), squirrels, mice, rabbits (*Sylvilagus* spp.), striped skunks (*Mephitis mephitis*), and moles. Marine mammals such as harbor seals (*Phoca vitulina*) are located in the more coastal areas around the Park.

Fish will not be discussed in this section, because while there are many species of fish in the greater vicinity of the project (Columbia River and Pacific Ocean), there are no fish-bearing streams in the project area and project construction will not affect surface waters.

### **3.2.5 Protected Species**

#### **3.2.5.1 Regulatory Overview**

Section 7 of the ESA requires federal agencies to ensure that their actions do not jeopardize the continued existence of a threatened or endangered species or their critical habitats. Federal actions include providing funding for a project or issuing federal permits. To initiate review of a project or action, an agency or its representative requests a list of threatened or endangered species from the USFWS and National Marine Fisheries Service (NOAA Fisheries). If listed species are known to occur in the project vicinity, the lead agency or its designee must complete a BA or biological evaluation for submittal to USFWS and/or NOAA Fisheries, describing how the project would affect listed species.

Protected species potentially occurring in the vicinity of the project were identified by the USFWS, NOAA Fisheries, WDNR, and WDFW (hereinafter identified collectively as the “Agencies”) (Table 5). Letters requesting species occurrence record searches were submitted to the Agencies in mid-summer 2002 and spring 2004. The 2004 responses were received from USFWS on June 2, WDFW on May 24, and DNR on June 12. No rare, threatened, or endangered plant species were identified as occurring in the immediate project area (USFWS 2004). NOAA Fisheries directed inquiries to resources available on their website. Fish and wildlife species identified as threatened, endangered, candidate, or proposed that may occur in the project area include brown pelican, bald eagle, and marbled murrelet. Of these species, the brown pelican is listed as endangered and the others are listed as threatened under the ESA.

Lead agencies (WSPRC and BLM) reviewed the project design and concluded that the proposed project warranted a BA based upon species literature review, life-history analyses, habitat requirements, agency consultation, and field reconnaissance. A draft BA was prepared for internal review in July 2004, which concluded that the proposed project will not adversely affect listed species (bald eagle, marbled murrelets, and brown pelican) potentially in the project area or habitat necessary to support these species. Project construction will be timed to avoid critical nesting periods for both the bald eagle (January 1 through August 15) and marbled murrelet (April 1 through September 15) (Parametrix 2003). Because there are no active bald eagle nests within the immediate vicinity of the project, Parametrix will explore the possibility of extending the winter work period to January 31 in consultation with USFWS biologists.

#### **3.2.5.2 Brown Pelican**

The brown pelican was listed as an endangered species by the USFWS on October 13, 1970 (35 FR 16047). With the banning of DDT in the U.S. in 1972 and the restriction in use of other pesticides, the reproductive success of brown pelicans has increased. By 1985, brown pelican populations on the Atlantic Coast of the U.S. had recovered to the point that the species was removed from the Endangered Species List (USFWS 1985). The brown pelican is still considered endangered in the Pacific Coast portion of its range. Along the Pacific Coast, breeding takes place from southern California to Peru and central Chile. The southern California population of brown pelicans today is estimated at 4,500 to 5,000 breeding pairs (USFWS 2000b).

**Table 5. Summary of Findings for Listed Species Potentially in the  
Cape Disappointment State Park Vicinity**

<b>Common Name (Scientific Name) DPS/ESU<sup>1</sup> Name</b>	<b>Federal Status<sup>2</sup></b>	<b>State Status<sup>3</sup></b>	<b>Life Stages Evaluated</b>	<b>Impacts Analysis Determination</b>
<b>Bald eagle</b> ( <i>Haliaeetus leucocephalus</i> )	T	ST	Nesting/ Wintering	<b>may affect, not likely to adversely affect</b>
<b>Brown pelican</b> ( <i>Pelicanus occidentalis</i> )	E	SE	Migratory	<b>may affect, not likely to adversely affect</b>
<b>Short-tailed albatross</b> ( <i>Phoebastria albatrus</i> )	E	SC	Migratory	No effect
<b>Western snowy plover</b> ( <i>Charadrius alexandrinus nivosus</i> )	T	SE	Nesting/ Wintering	No effect
<b>Marbled murrelet</b> ( <i>Brachyramphus marmoratus</i> )	T	ST	Nesting/ Foraging	<b>may affect, not likely to adversely affect</b>
<b>Northern spotted owl</b> ( <i>Strix occidentalis caurina</i> )	T	SE	Nesting/ Foraging	No effect
<b>Oregon silverspot butterfly</b> ( <i>Speyeria zerene hippolyta</i> )	T	SE	Reproduction/ Foraging	No effect
<b>Green sea turtle</b> ( <i>Chelonia mydas</i> )	E	ST	Marine	No effect
<b>Leatherback sea turtle</b> ( <i>Dermochelys coriacea</i> )	E	SE	Marine	No effect
<b>Loggerhead sea turtle</b> ( <i>Caretta caretta</i> )	T	ST	Marine	No effect
<b>Olive ridley sea turtle</b> ( <i>Lepidochelys olivacea</i> )	T	NA	Marine	No effect
<b>Bull trout</b> ( <i>Salvelinus confluentus</i> ) Columbia River DPS	T	SC	Marine	No effect
<b>Chinook salmon</b> ( <i>Oncorhynchus tshawytscha</i> ) Lower Columbia River ESU	T	SC	Marine	No effect
<b>Chum salmon</b> ( <i>O. keta</i> ) Lower Columbia River ESU	T	SC	Marine	No effect
<b>Coho salmon</b> ( <i>O. kisutch</i> ) Lower Columbia River/Southwest Washington ESU	C	NA	Marine	No effect
<b>Steelhead trout</b> ( <i>O. mykiss</i> ) Lower Columbia River ESU	T	SC	Marine	No effect

<sup>1</sup> DPS/ESU = Distinct Population Segment/Evolutionarily Significant Unit: the discrete fisheries management units by which USFWS and NOAA Fisheries regulate species resources.

<sup>2</sup> Federal Status Designations: E = Endangered, T = Threatened, C= Candidate.

<sup>3</sup> Washington State Status Designations: SE = State Endangered, ST = State Threatened, SC = State Candidate.

Brown pelicans found in the Cape Disappointment area are migratory. Each year after breeding (June to October) and before the wintering period, 200 or more brown pelicans can be observed loafing along the North Jetty of Cape Disappointment (WDFW 2004). Their range during this time can extend northwards as far as southern British Columbia (TNC 2000). PHS data from WDFW do not indicate any roosting areas within the project action area (WDFW 2004).

### **3.2.5.3 Bald Eagles**

PHS data indicate one bald eagle nest (active in 2001) within 900 feet of the project work area and one nest (active in 2003) within 0.5 mile of the project site (WDFW 2004). USFWS indicates that bald eagles do winter in the project vicinity; however, PHS data do not indicate any wintering concentration areas or roost sites in the project action area. The bald eagle wintering period is from October 31 through March 31. The project action area does represent suitable wintering habitat.

### **3.2.5.4 Marbled Murrelets**

Marbled murrelets are marine birds that forage in nearshore environments from northern California through Alaska. While it is rare to find marbled murrelets in great numbers, they are found in abundance in the coniferous forests west of the Cascade crest at low to moderate elevations (Smith et al. 1997). Marbled murrelets are resident year-round on coastal waters. USFWS listed marbled murrelets as threatened under the ESA in 1992 due to a decline in abundance and habitat degradation in the southern portion of their range. Marbled murrelet population decline has been attributed primarily to the loss and fragmentation of old-growth nesting habitat caused by logging and development (Ralph and Miller 1995). It is believed that forest fragmentation may be making nests near forest edges vulnerable to predation by other birds, such as jays, crows, ravens, and great-horned owls. In addition, this species is vulnerable to fishing nets and oil spills (Marshall 1988).

The Cape Disappointment area, including the Park, contains suitable and high quality marbled murrelet nesting habitat. There are four known occupancy sites shown on the PHS map within the area; the closest is approximately 0.75 mile from the proposed work area. In addition, all suitable habitat within 0.5 mile on either side of the project alignment is assumed to be suitable nesting habitat and potentially occupied. The project action area also represents a foraging area for marbled murrelets, as they typically forage in marine areas.

USFWS has not designated marbled murrelet critical habitat in or near (within 1.5 miles of) the project site or action area (USFWS 1996 and 2000a). Although habitat within the Park has not been officially designated as critical, much of the Park contains high quality marbled murrelet habitat, including the project action area. Critical habitat was not designated within the Park because it was assumed that the Park's status as a state park provides protection from adverse effects.

## **3.2.6 Air Quality and Noise**

### **3.2.6.1 Air Quality**

Air quality in the project area is very good. This area contains no large point sources of air emissions, and weather conditions are frequently windy, which results in quick dispersal of air contaminants (such as particulates from campfires). The Olympic Region Clean Air Agency (ORCAA) monitors ambient air quality in Pacific County. Monitoring was historically performed in Ilwaco and Raymond for total suspended particulates and PM<sub>10</sub> (particulate matter 10 microns and smaller). This air monitoring documented no exceedances of the national or state ambient air quality standards, and air monitoring in Ilwaco was subsequently discontinued (ORCAA 2002). The nearest operating monitoring site to Cape

Disappointment is currently located in Aberdeen, Washington. The Aberdeen site measures and monitors PM<sub>2.5</sub> (particulate matter 2.5 microns and smaller). No exceedances of the National Ambient Air Quality Standards for PM<sub>2.5</sub> have been recorded at that location (ORCAA 2002).

### **3.2.6.2 Noise**

Noise is generally defined as unwanted sound. The standard unit of measurement of sound is the decibel, which is based on a logarithmic scale. Because the human ear is not equally sensitive to sound at all frequencies, a frequency-dependent rating scale was developed to relate noise to human sensitivity. The A-weighted decibel (dBA) scale discriminates against very low and very high frequencies of the audible spectrum and is similar to the sensitivity of the human ear. The range of the dBA scale extends from 1 dBA, defined as the threshold of hearing, to 140 dBA, defined as the threshold of pain. Everyday sounds normally range from very quiet at about 30 dBA to very loud at approximately 100 dBA. Each interval of 10 dBA indicates a ten-fold (logarithmic) sound energy increase that is perceived by the human ear as a doubling of the sound. For example, a noise of 15 dBA sounds twice as loud as a sound of 5 dBA.

Noise levels drop off as the distance between the noise source and the receptor increases. For linear noise sources such as roads and highways, noise levels drop off by approximately 3 dBA for each doubling of distance from the noise source. For example, a noise reading of 65 dBA at 50 feet from a road would drop to 62 dBA at 100 feet from the road. For stationary sources or mobile sources that are temporarily stationary, the drop would be 6 dBA for each doubling of distance from the noise source.

#### **Existing Land Uses and Noise Sources**

The greatest source of concentrated noise is from vehicle traffic along the Park's road system, which includes Campground Road, McKenzie Head Road, and Park Entrance Road in the project area. The effects of traffic noise on surrounding areas depend on the noise levels generated, background noise levels, intervening terrain, and nature of land uses. Generally, ambient noise levels in the Park and the vicinity of the project are low to moderate, depending on the season. Ambient noise at the park is caused by a combination of human activities (including recreational activities such as camping, hiking, and bicycling) and the natural environment (such as wind and surf) and finally traffic noise. Noise is typically spread out through the Park, but there are several areas where noise levels are more concentrated (i.e., campgrounds, parking lots, and interpretive/recreational sites). There are no existing residential, church, school, or hospital noise-sensitive land uses in the project area.

Other sources of noise at the Park include maintenance activities such as grounds maintenance or small construction/repair projects that use hammers, saws, etc. Noise is also generated at or near the Park by hiking, bicycling, camping, and people conversing. Noise from hiking and bicycling is intermittent and of short duration. Noise from camping activities and people conversing occurs regularly at the Park, particularly during daylight and early evening hours.

#### **Relevant Criteria**

##### *Federal Highway Administration*

FHWA has developed guidelines for determining the impact from motor vehicle noise for several types of land uses. The FHWA has adopted noise abatement criteria that establish hourly A-weighted decibel levels for various land use activity categories. Noise levels were considered to have an impact when they approached (within 1 dBA) or exceeded the criteria, or when the predicted noise levels substantially exceeded the existing noise levels. A substantial increase is defined as a predicted noise level of 10 to 15 dBA greater than the existing noise level. Table 6 summarizes the noise levels for various land use

categories classified under the noise abatement criteria. Based on the types of activities listed, the Park would fit into Category B with a criterion of 67 dBA. Because the Park would fit into Category B, noise levels from the highway and access roads should be below 67 dBA to meet FHWA's noise standard. It is unlikely that average ambient noise levels would exceed 67 dBA during regular operations at the Park.

**Table 6. FHWA Noise Abatement Criteria**

<b>Activity Category</b>	<b>Noise Level</b>	<b>Description of Activity Category</b>
A	57 (exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels/hotels, schools, churches, libraries, and hospitals.
C	72 (exterior)	Developed lands, properties or activities not listed in Categories A or B above.
D	----	Undeveloped lands.
E	52 (interior)	Residences, motels/hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: USDOT (1982).

### Pacific County

Pacific County has a nuisance noise abatement ordinance, but not an ordinance related to the overall sound levels in the environment; therefore, the Washington State standards (WAC 173-60) apply to this project. The maximum allowable noise levels under the state standards are distinguished by being a source or a receiving property. Parks and camping facilities are classified as being within a Class A environmental designation for noise abatement (EDNA). The Class A EDNA has the strictest noise level requirements of the three classes (Class B is generally commercial property, and Class C is generally industrial property). The maximum permissible environmental noise level coming from a Class A EDNA and being received within a Class A EDNA is 55 dBA (WAC 173-60-040). However, sounds created by the installation or repair of essential utility services are exempt from the provisions of WAC 173-60-040 (WAC 173-60-050). Traffic noise in the Park that complies with the motor vehicle noise performance standards in WAC 173-62 is also exempt from Class A EDNA requirements. Even with the more stringent state standards listed above, the average ambient noise levels estimated at the Park would typically not exceed the 55-dBA standard for Class A EDNAs.

### **Sensitive Receptors**

The primary sensitive receptors in the project area would be threatened or endangered species (for example, the bald eagle or marbled murrelet).

### **3.2.7 Historic Properties and Cultural Resources**

AINW completed an intensive cultural resource inventory for the Park on February 21, 2003, and its findings are applicable to Phase 2. The previous inventory work was performed to meet the requirements of a BLM intensive cultural resource survey, 36 CFR Part 800.4 (per Section 106 of the National Historic Preservation Act), and the elements of the environmental provisions under SEPA (WAC 197-11-444) (AINW 2003a). As part of this evaluation, documents were obtained from the Washington Office of Archaeology and Historic Preservation and checked to determine if archaeological resources had been recorded nearby or to identify potential historic-period structures that might be in the vicinity of the proposed project (AINW 2002). The Governor's Office of Indian Affairs in Olympia, Washington, was

also contacted to confirm the appropriate tribes (Chinook Indian Tribe, Shoalwater Bay Indians, and Quinault Nation) to contact for information about traditional cultural places.

### **3.2.7.1 Native American Use**

The Chinook Indians, a tribe of Chinookan linguistic stock, lived in villages on the embankments of the Columbia River, from British Columbia, Canada through Eastern Washington State, and to the Pacific Ocean (American Indian Tribe 2002). The Chinook Indians territory was also known to encompass Southwest Washington and the Cape Disappointment State Park area. There are three recorded Native American archaeological sites within the Park: a Chinookan Indian village, called “Noksa’itmithis” or “Noxsxa’itnuts,” near Baker Bay; a fishing camp on the coast near Cape Disappointment Lighthouse; and a summer camp south of Beard’s Hollow (AINW 2002). These sites are outside of the project area.

### **3.2.7.2 Euroamerican Settlement in the Cape Disappointment Area**

The first Euroamericans to have a sustained visit to the region were Lewis and Clark. On November 15, 1805, Merriweather Lewis departed the main camp near the modern town of McGowan and explored what is now Cape Disappointment State Park (Moulton 1990). On November 18, 1805, Clark and 11 followers departed the camp at McGowan to explore Cape Disappointment (Moulton 1990). The travels on that day took them through the future locations of the modern towns of Chinook and Ilwaco on their way to the Cape. The Chinook Indians reported to Clark the location where European ships often anchored to trade with Native Americans (the current location of the Coast Guard buildings and the boat launch) (AINW 2002). Following the Lewis and Clark expedition in 1805, the next significant Euroamerican visitors to Cape Disappointment were members of John Jacob Astor’s Pacific Fur Company in 1811 (Hussey 1957). The Astor party chose a settlement location on the south side of the Columbia River near Astoria despite the desire of some members of the party to establish a settlement near Cape Disappointment. Over the next 40 years, the Cape Disappointment area was used primarily as a lookout.

By 1845, measures were taken to establish a military fort at Cape Disappointment (AINW 2002). Because of the lack of funding, military construction at the new fort did not begin until 1862. Earthworks and gun batteries were the first items to be installed. Permanent structures in the form of barracks, a hospital, stables, and the like were built along Baker Bay in the late 1860s and 1870s. The location of these buildings stands where the Park entrance and USCG facilities are today (AINW 2002). The new fort was listed as both Fort Cape Disappointment and Fort Columbia until 1875, when it was officially renamed Fort Canby in honor of General Edward Canby, who died in 1873 during the Modoc Indian War (AINW 2002). The end of Fort Canby as an active military fort came on March 28, 1947 (Hussey 1957). On this date, the War Department listed Fort Canby as one of the military complexes built up for World War II that was no longer needed (AINW 2002). All salvageable materials were removed, and in 1948 jurisdiction over the Fort Canby property was initiated for transfer to the Corps and the USCG. The site officially became Fort Canby State Park in 1957 (AINW 2002). It was renamed Cape Disappointment State Park in 2003.

### **3.2.7.3 Archaeological Sites and Ethnographic Resources**

Three previous cultural resource surveys have been conducted within the Park. In 1987, a cultural resource survey was conducted at the North Head Lighthouse for installation of a navigational antenna (Stilsen 1987). In 2001, a cultural resource survey was conducted for the proposed extension of the Lewis and Clark Discovery Trail between the cities of Long Beach and Ilwaco (Pullen 2001). In 2002, construction monitoring was conducted for installation of a fiber optic line near the Coast Guard complex (AINW 2003a; Harrison personal communication 2002). No prehistoric or historic period archaeological

sites or evidence were discovered during these recent resource surveys and monitoring activities (AINW 2003b).

The area near the Park entrance was known to have human activities for centuries, including the presence of Native Americans. After the establishment of Fort Canby in 1860, many buildings were constructed between 1913 and 1917, and several new buildings were constructed in this area to accommodate personnel from the Corps. Another wave of construction activity began in World War II. Several foundations from these historic buildings can be seen at the Park entrance on the west side of SR 100 near O'Neil Lake. Therefore, the Park entrance area is considered to be highly sensitive for cultural resources (AINW 2003a).

#### **3.2.7.4 Historical/Archaeological Structures and Period Resources**

The Cape Disappointment Historic District, listed on the National Register of Historic Places in 1974, includes the Cape Disappointment Lighthouse (1954) and the North Head Lighthouse (1898), as well as several coast fortifications associated with harbor defenses and aids to navigation at the mouth of the Columbia River. Contributing features within the Historic District include the two lighthouses and associated facilities, Battery Elijah O'Flyng, Battery Harvey Allen, Battery Guenther, Battery 247, the USCG station that was constructed on the original grounds of Fort Canby, and the North Jetty. The Historic District consists of structures and landscapes associated with historical developments dating from the mid-1800s to the mid-1900s (WSPRC 2003).

A number of historic structures exist within Cape Disappointment State Park but outside of the project area. The first, Cape Disappointment Lighthouse, was constructed in 1856 to warn seamen of the treacherous river bar known by then as "the graveyard of the Pacific" (WSPRC 2002b). This is the oldest functioning lighthouse on the West Coast. The second, the century-old North Head Lighthouse, was completed in 1898 to help guide mariners approaching from the north. Finally, the lighthouse keepers' residence is just inland from the North Head Lighthouse and is now offered as a vacation rental through the Park. Historically, there were three lighthouse keepers, each working an 8-hour shift to provide 24-hour coverage and ensure the light remained visible (LBPVB 2002). These features and the North Jetty and several gun emplacements (as well as most of Cape Disappointment State Park) are situated within the Cape Disappointment Historic District that was added to the National Register of Historic Places in 1975 (Hansen 1974).

Four historic period archaeological sites were identified by the field investigations conducted by AINW for the Cape Disappointment State Park Master Plan. The first was a low terrace to the south of the Park entrance that contained four houses built for the officers' quarters at Fort Canby. This terrace has both historic period artifacts and a row of three spruce trees that date back to the 1870s (AINW 2003b). The second site was a historic period trash dump and concrete foundations that were found near the lighthouse keeper's quarters. The third site was a shipwreck, probably dating to the twentieth century, at the southern base of North Head. The fourth site is the area with the World War II-era concrete foundations near the Park hub where historic-period artifacts were found (AINW 2003b). This site consists of 10 concrete foundations that are plainly visible on the maintained lawn west of the Park hub. State of Washington Archaeological Site Inventory Forms for each of these four archaeological sites were completed. In addition, areas likely to contain archaeological deposits included the old coastline between North Head and McKenzie Head. Because of analogous landforms facing the ocean along the old coastline and the proximity to the Fishing Rocks Site, these areas were specifically sought out. Therefore, the old coastline area between North Head and McKenzie Head is considered likely to contain shipwrecks (AINW 2003b).

Of the historic period archaeological sites listed above, the shipwreck at the southern base of North Head, the World War II-era concrete foundations at the Park hub, and the old coastline between North Head and McKenzie Head, which is considered likely to contain shipwrecks, are situated within the vicinity of the project area.

### **3.2.8 Land Use and Recreation**

#### **3.2.8.1 Land Use**

The project area lies within Cape Disappointment State Park on the Long Beach peninsula in Pacific County, Washington. The Pacific County Comprehensive Plan designates the Park as a public preserve. The purpose of this designation is to identify and protect unique and outstanding examples of publicly owned areas pertaining to recreation, fish and wildlife habitat conservation, or unique geologic features. This designation also highlights the responsibility of county, state, and federal governments to protect critical areas and other valued resources on lands within this designation. These lands are maintained as closely as possible to their natural state.

The Park is owned and/or managed by a combination of federal (USCG, Corps, BLM) and state (WSPRC) agencies (Figure 3) (Pacific County 1998). WSPRC owns two sections of the Park: the Beard's Hollow and North Head area, and an east-west swath that incorporates a section of the Park entrance area, O'Neil Lake and McKenzie Head Lagoon, the sewage lagoon, and the beach area. BLM owns the section between these two areas, which includes the West Campground and the east and west legs of SR 100. The Corps owns the southern quarter of the Park, which is predominantly wetlands and shoreline areas, and contains most of the major facilities in the Park entrance area. The USCG does not own any of the state park except for the area containing North Head Lighthouse, which the USCG has licensed to WSPRC on a long-term basis. In the North Head area, the USCG currently retains ownership of 1.9 acres, 0.6 acre of which is in the process of being excessed to the General Services Administration under the National Historic Lighthouse Preservation Act of 2000 (P.L. 106-355). The 0.6-acre parcel includes the lighthouse. The USCG for use as a communication site will retain a separate 1.3-acre parcel. Outside the Park, the USCG owns the area defined as Station Cape Disappointment near the Park entrance. Both the Corps and USCG are in the process of declaring some of their lands surplus, which represents an opportunity for WSPRC to expand its ownership of lands within the Park's boundary.

WAC 352-16-020 establishes a Land Classification System (LCS) for management of state park lands to provide a balance between protecting park resources and providing an appropriate variety of recreational opportunities to park visitors. The LCS includes six classifications: Natural Area Preserves, Natural Areas, Natural Forest Areas, Resource Recreation Areas, Recreation Areas, and Heritage Areas. Through the LCS, approximately 500 acres of the Park, a central swath of land running from the northwest to southeast, were classified in the mid-1980s as Natural Forest Area. The remainder of the Park was not classified at that time, but a recommendation has been made to develop some select portions of the Park consistent with the LCS system and the adopted Cape Disappointment Master Plan. Under this recommendation, the West Campground and Park entrance areas would be designated as Recreation Area, and the Campground Road area would be designated as a Resource Recreation Area.

Existing land uses adjacent to the Park consist of a mixture of rural land uses in the county and urban uses in the city of Ilwaco. Rural uses in the county, just north of the Park, include residential, and pasture, timber, agriculture, and other natural resource-related uses. A single-family subdivision called Discovery Heights is being developed in this area by MSW Ventures. Land use in the city of Ilwaco is typical of many small cities and includes mainly single-family residential uses, with a limited mixture of multi-family residential, commercial, recreational, and light industrial uses.

### **3.2.8.2 Recreation**

Cape Disappointment State Park offers the visiting public a wide array of recreational activities. The Park provides 27 miles of ocean beach, two lighthouses, an interpretive center, and over 7 miles of hiking trails. Other recreational activities include beachcombing; exploration of the historical, cultural, and natural resources; boating; fishing (freshwater/saltwater); bird watching; golfing; camping; clamming; crabbing; softball; volleyball; and wildlife viewing (WSPRC 2002b).

In general, picnic facilities are provided in the Park's day-use area, which has 20 unsheltered picnic tables on a first come-first served basis. There are three Americans with Disabilities Act (ADA)-compliant barbecue sites in the Park. Day use heritage areas include North Head Lighthouse, Colbert House Porch and Grounds, and convenience camping structures (three cabins and seven yurts) (WSPRC 2002b). Camping facilities consist of 150 standard campsites, 77 utility sites, 1 dump station, 8 restrooms (2ADA-compliant), and 14 showers (4 ADA-compliant). Camping is available on a year-round basis (WSPRC 2002b).

Other existing structures in the Park include the Lewis and Clark Interpretive Center and Cape Disappointment Lighthouse. Cape Disappointment Lighthouse is not included in the Park; however, the USCG allows visitor access to the lighthouse on an informal basis. The USCG station is situated south of the Park entrance, on USCG-owned land.

Over the past decade, annual visitation at the Park has ranged from less than 500,000 to over 1.2 million persons (WSPRC 2003). The average annual park attendance is approximately 700,000 persons, with about 13 percent overnight visitors and 87 percent day use visitors (WSPRC 2003). Over the next 5 years, visitation levels are expected to increase due to the Park's role in the upcoming bicentennial commemoration of the Lewis and Clark expedition. In short, attendance is expected to increase by 50 percent between 2003 and 2006 (WSPRC 2003). By 2007, attendance is anticipated to stabilize at a level 10 percent higher than the 2002 historic level, with an annual increase afterward of about 2 percent due to general increased demand for recreation in Washington and Oregon and increased local and regional population growth.

### **3.2.9 Infrastructure**

#### **3.2.9.1 Electricity**

Electricity is provided to the Park by Pacific County PUD No. 2 through a direct buried primary system. The existing primary line enters Park property from the north, along SR 100 west, and continues south within the west side of the SR 100 Spur right-of-way, past the Park entrance and on to the Coast Guard station. Electrical service currently exists at two locations within the Park. A single-phase electrical underground primary service located at the Park entrance serves the contact station, residences, maintenance shop, and the Waikiki comfort station. The campsites in this area do not have electrical hookups. This electrical service extends underground along Jetty Road, although no facilities or connections currently exist in this direction. The second location within the Park with electrical service is West Campground, south of the North Head Lighthouse. The three campground pods have a total of 180 sites, and of these, 77 have electrical service. Sixty sites are in the RV campground (Pod 1), and 17 are in Pod 2. The utility sites are served from a single-phase overhead line running down the cliff from the single-phase underground line serving the North Head Lighthouse complex. Each campground pod has a 50 kilovolt, 120/240 volt, single-phase pad-mounted transformer that serves the utility sites and the five comfort stations in the pods. There is also a phase converter for the sewage pump station at the site to provide three-phase power from a single-phase source.

### 3.2.9.2 Sewer

Prior to the Phase 1 utility improvements, sewage at the Park was collected via two package unit pump stations and treated at an on-site three-cell treatment and surface irrigation effluent discharge system. Under Phase 1, two new pump stations were constructed. Pump Station 1 near the concession stand at the Park entrance collects sewage from this area, the USCG station, the Lewis and Clark Interpretive Center, and the boat launch. Pump Station 2 was constructed near the intersection of SR 100 West and North Head Lighthouse Road, and collects sewage from Pump Station 1, the North Head Lighthouse residences, and the Beard's Hollow comfort station. New 6-inch sewer mains were constructed in several areas, including between the new pump stations and to a point of connection with the City of Ilwaco's sewer system. Figure 2 shows the existing sewer system at the Park and the proposed sewage pumping improvements.

### 3.2.9.3 Water

Prior to the Phase 1 utility improvements, the City of Ilwaco provided water to the Park via a 6-inch main located along an unstable portion of the SR 100 roadbed that is prone to slides (Parametrix 2002). Within the Park, water was distributed via 4-inch mains. The system lacked adequate pressure and flow for fire protection (Parametrix 2002). The Phase 1 improvements involved construction of new 8-inch water mains from the new 400,000-gallon reservoir to the north of the Park, to several park areas, including Beard's Hollow, North Head, and the Park entrance, as well as the USCG station.

### 3.2.9.4 Telephone and Fiber Optics

Century/Tel provides telephone service at the Park. The telephone and fiber optic lines are buried along the west side of SR 100 West, as well as along the west side of SR 100 Spur.

### 3.2.9.5 Roads

Figure 2 shows existing roads within and around Cape Disappointment State Park. Traffic count data from the Washington State Department of Transportation (WSDOT) for SR 100 Loop and SR 100 Spur roads are shown in Table 7. The data indicate that average daily traffic has increased only slightly over the period from 1998 to 2001 on the roads within the Park. Average daily traffic ranged from 790 to 1,800 trips in 2001.

**Table 7. Average Daily Traffic Counts, SR 100 Loop and Spur Roads**

State Route	Milepost	Location	Average Daily Traffic Volume			
			1998	1999	2000	2001
100	2.95	SR 100 West, just north of SR 100/100 Spur junction	830	1,000	1,000	1,100
100 Spur	2.97	Just south of SR 100/100 Spur junction	1,600	1,800	1,800	1,800
100 Spur	3.43	Just south of Cape Disappointment State Park entrance	770	770	780	790

Source: WSDOT, Trips System, Annual Traffic Report, page 65.

Note: These counts were taken between late spring and early fall (WSDOT 2002).

The monthly traffic count data for traffic exiting the Park at the entrance road and traffic accessing the North Head Lighthouse Road and west areas of the Park are shown in Table 8. The West Area covers West Campground, McKenzie Head Road, North Jetty, and Waikiki Beach. The table highlights the seasonal variability in traffic patterns at the Park, with the highest traffic volumes occurring during the

peak summer season. Monthly traffic ranged from 1,045 to 15,862 vehicle trips at the North Head Lighthouse Road and from 2,395 to 40,347 vehicle trips at the Park entrance.

**Table 8. Monthly Traffic Counts, Cape Disappointment State Park**

<b>Traffic Counts (Average Monthly Vehicle Trips)</b>			
<b>Month/Year</b>	<b>North Head Lighthouse Road</b>	<b>Park Entrance</b>	<b>West Area</b>
01/01	1,045	2,555	
02/01	3,139	6,542	6,542
03/01	4,415	7,265	7,265
04/01	6,244	13,988	13,988
05/01	6,121	12,439	12,439
06/01	7,980	17,721	17,721
07/01	11,963	26,233	26,233
08/01	15,862	40,347	40,347
09/01	8,074	25,285	25,285
10/01	4,777	2,395	12,395
11/01	4,036	10,140	10,140
12/01	1,741	6,788	6,788
01/02	2,830	5,157	5,157
02/02	3,263	6,437	6,437
03/02	3,723	7,290	7,290
04/02	6,183	12,004	12,004
06/02	6,393	11,965	12,177
07/02	12,472	27,744	11,965
08/02	13,424	29,510	27,744
09/02	9,844	29,803	29,150

Source: WSPRC, Cape Disappointment State Park.

### **3.2.10 Socioeconomic Issues and Environmental Justice**

#### **3.2.10.1 Environmental Justice**

Executive Order 12898 requires all federal agencies to seek to achieve environmental justice by “identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental impacts on minority and low-income populations.” The NEPA process is typically used as the primary mechanism to implement the provisions of Executive Order 12898. This section describes the existing demographics and income levels in Pacific County and the city of Ilwaco and addresses any disproportionate impacts to minority or low-income populations.

#### **3.2.10.2 Population and Race**

The population of Pacific County increased from 18,882 in 1990 to 20,984 in 2000 (USCG 2002; USBC 2000). The racial and ethnic makeup of Pacific County in 2000 was 18,998 white (90.5 percent), 42 black (0.2 percent), 513 American Indian and Alaska Native (2.4 percent), 436 Asian (2.1 percent), 19 Native Hawaiian and other Pacific Islander (0.1 percent), and 384 of some other race (1.8 percent) (USBC 2000). Of all the minority races, 1,052 of these people were of Hispanic origin (Note: Hispanic people can be of any race).

By comparison, the city of Ilwaco's population increased from 815 in 1990 to 950 in 2000 (USCG 2002; USBC 2000). The racial and ethnic makeup of Ilwaco in 2000 was 882 white (92.8 percent), 5 black (0.5 percent), 13 American Indian and Alaska Native (1.4 percent), 4 Asian (0.4 percent), 1 Native Hawaiian and other Pacific Islander (0.1 percent), and 17 of some other race (1.8 percent). Of all the minority races, 50 of these people were of Hispanic origin. A comparison of the 2000 census data for Pacific County with the 2000 data for the city of Ilwaco shows that the percentages in the racial mix are very similar, except that there were slightly more whites and fewer minorities in the City of Ilwaco than in Pacific County (92.8 percent whites and 7.2 percent minorities in Ilwaco compared to 90.5 percent whites and 9.5 percent minorities in Pacific County).

### **3.2.10.3 Income and Poverty**

In 2000, the median household income in Ilwaco was \$29,632, compared to \$31,209 for Pacific County (USBC 2000). While there is not a significant disparity between these household income figures for Ilwaco and Pacific County, there is in the average personal income between the County and Washington State. In 1999, the average personal income in Pacific County was \$20,523, compared to a statewide average of \$30,380 (USCG 2002). In 2000, the number of people below poverty status in Ilwaco was 159 out of a total of 950 (for whom poverty status was determined) or 16.3 percent (USBC 2000). In Pacific County for the year 2000, the number of people below poverty status was 2,973 out of a total of 20,984 (for whom poverty status was determined) or 14.4 percent.

### **3.2.10.4 Employment**

The County's economic base is undergoing a long-term transition from a resource-based economy to a tourism and services economy. In 2000, there were 7,989 Pacific County civilians of 16 years of age or older employed in 2000. The category and percentage by occupation includes 2,129 in management, professional, and related occupations (26.6 percent); 1,718 in service occupations (21.5 percent); 1,636 in sales and office occupations (20.5 percent); 1,222 in production, transportation, and material moving occupations (15.3 percent); 822 in construction, extraction, and maintenance occupations (10.3 percent); and 462 in farming, fishing, and forestry occupations (5.8 percent). There were approximately 59 people employed in the armed forces, or 0.3 percent of the civilian labor force. There were 674 people or 3.9 percent of the labor force listed as being unemployed.

For the city of Ilwaco, 407 Ilwaco residents of 16 years of age or older were employed in 2000. The category and percentage by occupation includes 131 in management, professional, and related occupations (32.2 percent); 89 in sales and office occupations (21.9 percent); 69 in service occupations (17 percent); 68 in production, transportation, and material moving occupations (16.7 percent); 31 in construction, extraction, and maintenance occupations (7.6 percent); and 19 in farming, fishing, and forestry occupations (4.7 percent). Approximately 17 people were employed in the armed forces, or 2.3 percent of the civilian labor force. There were 28 people or 3.7 percent of the labor force listed as being unemployed.

### **3.2.10.5 Cape Disappointment State Park Socioeconomics**

Tourism destinations such as the Park attract visitors who support the business establishments and tax base of Pacific County. State park (i.e., all parks in Washington State) visitation represents about one-fourth of the total outdoor recreation spending in Washington State. The average daily spending of visitors to Washington State Parks includes accommodations, on-site dining, stores, recreation, and transportation. The impact of state park visitation on Pacific County includes \$45,300,000 in trip expenditures, \$510,000 in local tax receipts, and 770 jobs. Employment at Cape Disappointment State Park varies seasonally. Employment levels in late 2003 included 8 rangers, 2 maintenance workers, 1 office staff, 3 interpretive specialists, 2 seasonal bus drivers, and 16 seasonal Park aides (WSPRC 2003).

## 4. ENVIRONMENTAL IMPACTS

### 4.1 IMPACTS OF ALTERNATIVE 1 (PROPOSED ACTION)

#### 4.1.1 Geology/Soils/Topography

Implementation of the Proposed Action would require the disturbance of land and soils to facilitate construction of the Phase 2 utility improvements. Land disturbance, including excavation and fill, would consist of the following quantities:

##### 4.1.1.1 Land Disturbance

- 39,000 square feet of land disturbance for 13,000 linear feet of utility trenching in the road prism and shoulders of the Park Entrance Road, McKenzie Head Road, and Campground Road.
- 6,300 square feet of land disturbance for 6,000 linear feet of utility trenching in developed campground areas at West Campground.
- 400 square feet of land disturbance for construction of two grinder pump stations.
- 70,000 square feet of land disturbance for leveling the dike surrounding the lagoon and the existing drain field.

##### 4.1.1.2 Excavation and Fill

- 6,700 cubic yards of material removed for excavation for the utility trenching, and 120 cubic yards removed for construction of the two grinder pump stations.
- 7,700 cubic yards of material imported to fill and decommission the sewage lagoon.
- 312 cubic yards of asphalt concrete pavement underlain by 1,100 cubic yards of crushed rock base course for the paving of 60 RV campsites at Pod 1 in the West Campground.

The total area of land disturbance would be approximately 2.64 acres. Overall, the vast majority of the proposed land disturbance would take place on lands that have previously been disturbed by development activities (e.g., roads, campgrounds, utility corridors). The primary areas of disturbance for trenching would occur within the road prism and shoulders along Campground Road, McKenzie Head Road, and Park Entrance Road (Figure 2). The only trenching to take place outside the road prism will be within the West Campground pods, and between the trailer dump and new Waikiki grinder pump station. Other installation work outside the road prism will be pipe-bursting of the gravity sewer from Pod 3 to the Hookups pump station and pipe-bursting of sewer force main from the Hookups pump station to the intersection of McKenzie Head Road and the sewage lagoon access road. Horizontal directional drilling will be used to install the power conduit between Campground Road and the Hookups pump station, and to install utility lines beneath the metal culvert on McKenzie Head Road.

Based on the above quantities of land disturbance, erosion and sedimentation impacts to disturbed soils could occur during construction of the Phase 2 utility improvements. The erosion of soils is a naturally occurring process that is usually aggravated by removal of vegetation, alteration of topography, and uncontrolled stormwater runoff. Some potential impacts from erosion and sedimentation include (1) clogging culverts, storm sewers, and infiltration devices; (2) degrading stream habitat; and (3) degrading water quality by increasing turbidity. Collectively, if not properly mitigated, soil disturbance impacts under the Proposed Action would result in short-term, minor to moderate impacts. Strict best management

practices (BMPs) as identified in Section 4.1.1.2 would be implemented to reduce potential adverse effects associated with stormwater runoff and erosion and sedimentation impacts to adjacent surface waters, including O'Neil Lake and McKenzie Head Lagoon. O'Neil Lake is situated north of the proposed work on McKenzie Head Road, while McKenzie Head Lagoon is situated to the south. After construction is completed, there would be little likelihood of erosion occurring, because the soil areas exposed during construction would be covered or revegetated.

#### **4.1.1.3 Hazardous Materials and Solid Waste**

There are no known hazardous materials on lands within the project area. The sewage lagoon does pose a potential threat from solid waste and associated contaminants; however, as part of the Phase 2 site investigations to evaluate decommissioning the lagoon, 12 biosolid samples were taken to determine their conformance with the Washington State regulatory standards (WAC 173-308-160). As noted in Section 3.2.1.1 and Tables 2 and 3, the results were found to be within the acceptable limits set forth by WAC 173-308-160. Therefore, sewage sludge that meets these criteria is described as biosolids, not solid waste, and can be put to a beneficial use as a soil amendment.

#### **4.1.2 Wetlands/Vegetation**

Impacts to wetlands and vegetation are expected to be minimal because a majority of the utility improvements in the Proposed Action will be located within the existing road prism of the Park entrance Road, McKenzie Head Road, and Campground Road. Open trenching will be used within the road prism, and within existing improved areas such as the campgrounds. Where lines will be installed in environmentally sensitive areas, impacts to protected resources will be minimized by the use of subsurface methods of installation, such as pipe-bursting, slip-lining, and horizontal directional drilling. Regardless of the techniques used, specific measures (sediment fences along the toe of the slope, barrier fences, vehicle wash-off areas outside of wetlands, etc.) would reduce the possibility of any accidental discharge, filling, or excavation within wetlands.

In regards to the decommissioning of the sewage lagoon, representatives from the Corps (Ron Wilcox and Gail Terzi, Seattle District Office) have confirmed that the sewage lagoon and the associated drain fields are exempt from Corps permitting requirements (Corps 2003).

#### **4.1.3 Water Quality/Floodplains**

During construction, the Proposed Action Alternative would require approximately 2.64-acre of ground disturbing activities that could affect vegetation and soils. The removal of vegetation and the disturbance of soils would have the potential to increase sediment transport to adjacent surface waters, such as O'Neil Lake and McKenzie Head Lagoon. Additional effects would include erosion from cleared areas, erosion from earth stockpiled during construction, and erosion from sediment transported off site in uncontrolled stormwater runoff. Other less likely impacts could occur from spills of fluids or petroleum products during refueling or maintenance operations within the construction areas. Implementing BMPs to safeguard against erosion and sedimentation would reduce these potential impacts to surface waters, and a spill prevention plan would also be prepared.

Beneficial impacts to floodplains and water quality could occur under the Proposed Action Alternative associated with the decommissioning of the sewage lagoon. For example, the Proposed Action Alternative would result in the removal of the sewage treatment lagoon, which would safeguard public health and safety by removing a potential risk of contamination to water quality in the event of a system failure or breach due to coastal erosion or flooding. Additionally, the removal of the sewage lagoon would stabilize the floodplain by eliminating an incompatible use.

#### **4.1.4 Fish and Wildlife**

No long-term harm to fish and wildlife or their habitat in the project area is anticipated from construction and implementation of the Proposed Action. There are no fish-bearing streams in the project area, and the project will involve no in-water work. All utility work in the Proposed Action will occur within existing improved areas and should not affect fish or wildlife habitat. Project construction may result in localized, short-term increases in noise levels, which may be a source of disturbance for some wildlife species. Project-related disturbance to wildlife is expected to be minimal due to the short duration of the disturbance, current high level of use of the work areas by Park visitors (e.g., roads and campgrounds), and availability of alternative habitat in the Park.

#### **4.1.5 Protected Species**

The Proposed Action is not expected to have any adverse effect on protected species or their habitat. No habitat for special status species will be modified or removed during project implementation. Construction activities have been scheduled to avoid the critical nesting periods for marbled murrelets and bald eagles, and there are no known active nest sites for protected species within 0.5 mile of the proposed work areas. Potential disturbance of protected species from project-related noise is expected to be minimal, given the short duration of the disturbance, current high level of use of the work areas by Park visitors (i.e., roads and campgrounds), and availability of alternative habitat in the Park.

#### **4.1.6 Air Quality and Noise**

##### **4.1.6.1 Air Quality**

Implementing the Proposed Action could temporarily degrade air quality by generating exhaust emissions from construction vehicles and equipment and the generation of dust and odor. Vehicle exhaust contains carbon monoxide, particulates (unburned hydrocarbons), and emissions that combine to form ozone, which can adversely affect human health. Emissions from these sources are not anticipated to adversely affect human health for the following reasons: (1) the scale of the improvements are moderate in size, making it easier to manage, (2) the use of construction equipment, which can produce the potential concentration of emission sources, would be controlled by construction stages and sequencing, and (3) prevailing winds from the Pacific Ocean help disperse emissions at the site.

Additionally, vehicle exhaust and asphalt paving can also produce odors that may be objectionable to park users. Fugitive dust is generated during earth disturbance activities, such as clearing and grading, and is generally composed of larger particles that settle fairly rapidly. While dust is generally confined to the vicinity of the project area, it can be spread over a larger area by strong winds or by construction vehicles entering and leaving the construction site, particularly those transporting cut or fill material. Collectively, under the Proposed Action, short-term and localized impacts to air quality would occur during construction from emissions, dust, and odor. No long-term operational impacts to air quality would occur from the Proposed Action.

##### **4.1.6.2 Noise**

A qualitative noise analysis was conducted for Phase 1 of the Utility Infrastructure Improvements Project to estimate existing noise levels, and its findings are applicable to Phase 2. The study was primarily based on the type of land use found in the park, the distance to nearby sensitive receptors, traffic noise, and noise generated by construction equipment. A Federal Transit Administration noise modeling spreadsheet program was used to estimate the potential noise levels at Cape Disappointment State Park that are generated by traffic on SR 100 and North Head Lighthouse Road (HMMH 1995). This program relies on

standardized inputs for traffic noise from automobiles and larger vehicles such as buses (bus noise was used as an input to approximate the noise from trucks). It also considers data such as distance to a receptor, the type of receptor, and the number and speed of the vehicles. It was assumed that the majority of vehicles on the road are automobiles.

For this analysis, reference locations of 50 feet, 100 feet, 500 feet, and 1,320 feet from roadway centerline were used in estimating noise levels, and three separate inputs were considered: the SR 100 Spur segment near the Park entrance, the average park noise levels during peak season (summer), and the average Park noise levels during non-peak season (winter). The traffic analysis indicated that during the peak season (summer), approximately 212 vehicles per hour pass through the Park on SR 100 traveling at a speed of about 35 miles per hour (mph). During non-peak season (winter), approximately 58 vehicles per hour pass through the Park on SR 100 traveling at a speed of approximately 35 mph. At SR 100 near the Park entrance, approximately 158 vehicles per hour pass through the Park traveling at a speed of about 35 mph. It was assumed that 10 percent of the vehicles would be trucks. The noise analysis results from traffic on SR 100 and the adjacent access roads are characterized in Table 9. Table 9 provides estimates for potential noise levels at 50 feet, 100 feet, 500 feet, and 1,320 feet (1/4 mile). These ranges were chosen because they were indicative of the varied distance between sensitive receptors and the noise generated along the roads in the park.

**Table 9. Estimated Noise Levels (dBA) at Cape Disappointment State Park**

Location/Season	Existing Noise Levels (dBA) by Interval							
	50 Feet		100 Feet		500 Feet		1,320 Feet	
	Avg.	Peak	Avg.	Peak	Avg.	Peak	Avg.	Peak
SR 100 Spur, near park entrance (summer peak season)	54	57	49	53	39	42	33	36
Park (summer peak season)	56	60	52	55	41	45	35	38
Park (winter non-peak season)	51	54	46	50	36	39	28	32
<b>Total (Average)</b>	<b>54</b>	<b>57</b>	<b>49</b>	<b>53</b>	<b>39</b>	<b>42</b>	<b>32</b>	<b>35</b>

Source: HMMH (1995).

Noise would be generated during construction of the utility improvements and be an unavoidable short-term impact. The duration and level of noise is dependent on the different phases of construction activity, but typically noise levels are highest during ground clearing and excavation. Noise levels generated by construction equipment and vehicles typically range from 75 to 91 dBA at 50 feet without noise control and 75 dBA with noise control (i.e., muffler). Construction operations involving equipment and vehicles used in trenching, excavating, clearing, and finishing activities would be the primary source of noise. Construction noise would be intermittent and short-term in duration.

Typical construction equipment likely to be used for the project and noise levels associated with these types of equipment are shown in Table 10. Noise levels for construction equipment without mitigation range from 75 dBA for a pickup truck to 91 dBA for excavating equipment. These noise levels would be reduced approximately 6 dBA per doubling of distance from the piece of equipment. For example, as shown in Table 10, the noise level of a grader at 50 feet from the equipment would be 85 dBA. At 100 feet from the grader, the noise level would drop by 6 dBA, to 79 dBA. Table 10 also shows the effects of equipment or operating modifications on reducing noise levels associated with construction equipment. These could include mufflers on exhausts and use of acoustical enclosures. Intervening

topography, acting as a barrier between a piece of equipment and a sensitive receptor, would further reduce noise levels. Potential disturbance of protected species from project-related noise is expected to be minimal, given the short duration of the disturbance, current high level of use of the work areas by Park visitors (i.e., roads and campgrounds), and availability of alternative habitat in the Park.

**Table 10. Typical Construction Equipment Noise Levels (dBA)**

Equipment	Noise Levels (in dBA) at 50, 100, and 200 Feet					
	Without Noise Control			With Feasible Noise Control <sup>1</sup>		
	50 Feet	100 Feet	200 Feet	50 Feet	100 Feet	200 Feet
<b>Excavating</b>						
Backhoe	85	79	73	75	69	63
Excavating Truck	91	85	79	75	69	63
Grader	85	79	73	75	69	63
<b>General Construction</b>						
Air Compressor	81	75	69	75	69	63
Pump	76	70	64	75	69	63
Pick-Up Truck	75	69	63	75	69	63

Source: United States Environmental Protection Agency (EPA), 1971.

<sup>1</sup> Estimated levels obtainable with quieter procedures or machines, or by implementing noise control features (i.e., muffler) that require no major redesign or extreme costs.

#### 4.1.7 Historic Properties and Cultural Resources

Generally, the Proposed Action would be expected to have negligible to minor impacts on historic and cultural resources at the Park. The majority of the Phase 2 utility improvements under the Proposed Action would be situated on lands committed to a developed condition (i.e., the road prism of Park Entrance Road, McKenzie Head Road, and Campground Road), or within developed areas with no known cultural or historic resources (i.e., West Campground and the sewage lagoon) and a low probability of further disturbance to intact historic and cultural resources. The exception would be for ground disturbing activities proposed at the Park entrance. This is an area which has been identified as containing a moderate to high probability for cultural resources based on the 2003 intensive cultural resource inventory prepared by AINW for WSPRC and Cape Disappointment State Park (AINW 2003 a, b).

Ground-disturbing activities at the Park entrance will occur for the partial dismantling of the Waikiki pump station, the construction of the new grinder pump stations (i.e., Waikiki grinder pump station and contact station grinder pump station), and for the 300 linear feet extension of gravity sewer (open cut excavation) from the new Waikiki grinder pump station to the trailer dump. These actions would cut through layers of sediment possibly yielding significant cultural resource information. Site monitoring activities at the Park entrance associated with the Proposed Action would ensure that unmitigated resource damage, if any, would be avoided and that archaeological resources, if present, would be protected. Based on these measures, the Proposed Action would have no adverse effect on historic and cultural resources, and the overall effects would be short-term and negligible. Therefore, WSPRC proposes a “finding of no adverse effect” for this element of the project under 36 CFR Part 800.5(b). This determination will be coordinated with SHPO as part of Section 106 of the National Historic Preservation Act.

The intensive cultural resource inventory also indicated that there could be a possibility of encountering undiscovered shipwrecks in or below the accreted lands lying between North Head and McKenzie Head (i.e., old coastline). The utility alignment for Phase 2 actions at the sewage lagoon and West Campground is on average setback approximately 300 feet from the shoreline of the Pacific Ocean, which reduces the likelihood of encountering undiscovered shipwrecks. To further ensure that excavations are minor in this area of the Park, a combination of avoidance and minimization techniques to minimize ground disturbance would be used, including pipe-bursting, slip-lining, and horizontal directional drilling.

However, if unrecorded archaeological deposits are found during construction of the Phase 2 improvements under the Proposed Action, the project will stop, and an evaluation will be conducted in coordination with the Office of Archaeology and Historic Preservation. The evaluation will focus on the following measures: (1) impact avoidance, (2) data recovery, (3) site redesign, (4) site relocation, and (5) site hardening. In addition, a proposed mitigation plan for the project, with impact avoidance being the first priority, will be developed prior to continuation of the project. Therefore, no direct or indirect impacts to existing or potential cultural and historic resources would occur for those improvements extending north from the Park entrance since no such resources have been identified within the Area of Potential Effect (APE), and previously identified resources are in the vicinity of but outside the APE.

#### **4.1.8 Land Use and Recreation**

The Proposed Action will not affect shorelines or coastal barrier resources, as they lie just outside the project area. The project would alter land use in three areas in the Park; namely, at the locations of the two grinder pump stations and the sewage treatment lagoon. Approximately 400 square feet of parkland would be converted to a utility use for the two grinder pump stations. The closure and decommissioning of the sewage treatment lagoon would have a long-term minor to moderate beneficial impact because it would convert 70,000-square feet of land from a utility use to a parks and recreation use.

#### **4.1.9 Infrastructure**

During construction, utility work in or near Park roads is expected to result in temporary lane closures or detours for Park visitors and Park operations staff. These construction activities could also restrict the ability of emergency vehicles to pass through the area in a timely manner.

The Proposed Action would improve the water, sewer, electrical, and telephone infrastructure at the Park by increasing capacity to serve existing and future needs and improving the dependability of the systems. Upgrading the water lines would provide a reliable and potable drinking water supply free of health risks to residents and visitors, and the new sewer disposal system would allow the sewage treatment lagoon to be decommissioned, which would avoid the potential threat of contamination of wildlife habitat and human health risks from coastal flooding and erosion. The new, higher-capacity electrical system would prevent power outages and ensure that emergency services continue to operate efficiently, other systems such as the sewer system have the power to operate, and the RV camping demand can be met for current and future Park visitors.

#### **4.1.10 Socioeconomic Issues and Environmental Justice**

The Proposed Action has the potential to result in long-term economic benefits through the increase in capacity to serve a greater number of Park visitors who directly support the business establishments and tax base of Pacific County.

#### **4.1.11 Cumulative Impacts of Alternative 1 (Proposed Action)**

##### **4.1.11.1 Regulatory Framework**

The CEQ defines cumulative impacts as follows:

- Cumulative impacts are those that “result from incremental consequences of an action when added to other past, present, and reasonably foreseeable future actions.” The cumulative effects of an action may be undetectable but can add to other disturbances and eventually lead to a measurable environmental change.

##### **4.1.11.2 List of Cumulative Actions**

As noted above, cumulative impacts combine the effects of the proposed project and other past, present, and foreseeable future projects. The projects at the Park that could potentially result in cumulative impacts when combined with the Proposed Action Alternative include the following:

- Cape Disappointment State Park Infrastructure Improvements, Phase 1 EA/BA. Under this action, WSPRC replaced the Park’s water distribution system and built a new sewer collection system. The Park’s water distribution and sewer collection system were designed for connection to the City of Ilwaco’s water and sewer system. The EA and BA were approved with a FONSI and a biological opinion, respectively, in the fall of 2003. The utility improvements were completed in early 2004.
- Cape Disappointment State Park Master Plan. The Park Master Plan serves to provide the long-term (20-year planning horizon) management guidance for the operation and improvement of the Park. The goal of the Master Plan is to enhance high-quality recreational opportunities for Park visitors while protecting important natural and cultural resources. Key elements of the Park Master Plan include changes to the long-term boundary, land classification program, and transportation system, as well as improved visitor contact, replacement camping and overnight accommodations, isthmus redesign and improvements, identification of cultural landscapes, expanded and improved day facilities, and an expanded trail system.
- Confluence Project at Cape Disappointment State Park. The Confluence Project has contracted with artist Maya Lin to design several art installations in Washington State commemorating the Lewis and Clark Corps of Discovery’s bicentennial, including a project situated in the isthmus of the Park. Proposed concepts include environmental art that promotes the natural and historic connections across the isthmus, and the development of a site-specific work of art on the shores of Baker Bay, east of the boat ramp parking area (WSPRC 2003).
- Lewis and Clark National and State Historical Parks. Under this action, Fort Clatsop National Memorial is expanded to include Station Camp, Clark’s Dismal Nitch (Megler Safety Rest Area), and a Thomas Jefferson National Memorial on federal land within the Park. The National Park Service unit’s name is changed to Lewis and Clark National and State Historical Parks. In addition, legislation creates a collaborative thematic relationship between the National Park Service at Fort Clatsop National Memorial and WSPRC at Cape Disappointment State Park, Fort Columbia State Park, and Station Camp State Park. The thematic partnership would also be extended to WSDOT at the Megler Safety Rest Area and to Oregon State Parks at Fort Stevens State Park and Ecola State Park to interpret and preserve sites associated with the Lewis and Clark expedition (WSPRC 2003).
- North Jetty Repairs. The North Jetty is maintained by the Corps, and this area is experiencing coastal erosion and undercut conditions due to storm surges and high tides. The Corps is currently

evaluating the types of repairs needed, and the jetty rehabilitation actions are expected to take place within the next 5 to 10 years (WSPRC 2003).

- **Private Land Development.** Two sizeable private developments are located adjacent to the Park. These developments include Discovery Heights, a 300-acre resort development, and the Realvest property, which is also proposed for resort development. These private properties are within the City of Ilwaco's jurisdiction, and Phase 1 of the Discovery Heights Resort Development was approved for construction in 2003. Discovery Heights is situated adjacent to the northern boundary of the BLM-owned portion of the Park, between the SR 100 Loop roads. The Realvest property is situated immediately north of Beard's Hollow between the Pacific Ocean and SR 100 Loop Road (WSPRC 2003).

#### **4.1.11.3 Cumulative Impacts**

Cumulative impacts associated with the Proposed Action may affect wetlands and vegetation, wildlife and protected species, historical/archaeological resources, park operations and visitor experience, and infrastructure.

##### **Wetlands/Vegetation**

The Phase 2 Utility Infrastructure Improvements Project (Proposed Action), when combined with other past actions (i.e., Phase 1 Utility Infrastructure Improvements Project), current actions (i.e., adopted Park Master Plan, private development), and future actions (i.e., private development, Confluence Project, and North Jetty Repairs), may affect wetlands and vegetation directly or indirectly. Collectively, these actions could produce additional development (land disturbance, parking, camping areas, trails, etc.) in the Park and the surrounding area, and the associated impacts may include direct wetland fill or displacement of wetland buffer, or indirect effects such as changing hydrological patterns in and around wetlands. They may also involve removal or disturbance of native vegetation. However, wetlands are recognized as a valuable natural resource and are protected by federal, state, and local regulations, and Park policy strives to protect sensitive areas such as wetlands and to protect, preserve, and enhance native plant species. As a result of Park policies, the regulatory protection wetlands receive, and the required mitigation for wetland disturbance, cumulative impacts are expected to be relatively minor, if they occur at all.

##### **Wildlife/Protected Species**

Development activities associated with future actions, such as the Park Master Plan, and private development that would increase human presence could have cumulative impacts on wildlife and protected species. Impacts typically associated with human presence include increases in noise, air pollution such as dust during construction and particulates associated with vehicle emissions and campfires, vegetation disturbance, and trash generation. These activities may result in wildlife avoidance of certain areas and/or changes in natural wildlife behavior (such as nesting and foraging). When combined with the other past, present, and future planned actions, the Proposed Action would contribute to cumulative effects because this action provides additional capacity to the Park's utility infrastructure to meet current and projected visitation and demand. These effects would be adverse and minor in intensity, and would diminish somewhat based on the fact that the Park Master Plan contains policies that protect natural areas, such as the Natural Forest Area. Additionally, separate site-specific environmental analysis would be required for future proposed actions that could adversely affect federally protected species.

## **Historic/Cultural Resources**

Additional development activities have the potential of affecting historic or cultural resources. This is particularly applicable to the latter, as site disturbance that requires excavation into soils could disturb previously unknown cultural and archaeological resources. Therefore, when combined with the Proposed Action, there is a cumulative increase in the risk of disturbing these resources because of future actions associated with implementing the Park's Master Plan, the Confluence Project, and the North Jetty Repairs. However, prior to development occurring within the Cape Disappointment Historical District, or in areas of the Park that are considered to have moderate to high probability of encountering cultural resources, consultation with SHPO, Native American Tribes, and other land management agencies would be required in accordance with Section 106. During this consultation effort, there may be requirements to perform site reconnaissance and survey, as well as monitoring of site disturbance activities. Because of these requirements, these resources would not likely be adversely affected.

## **Visitor Experience and Park Operations**

The Proposed Action will upgrade the infrastructure capacity at the Park to serve additional visitors. The Park's Master Plan is also aimed at providing Park improvements to increase the number of visitors. However, the Master Plan will also provide policies that strive to balance the need to serve additional capacity with the need to preserve and protect the natural areas and features of the site. Despite these protections, it is likely that there will be some cumulative increase in impacts to wildlife at the Park. The area's overall air quality can be expected to deteriorate somewhat in the short term and long term because of construction activities, increased vehicular emissions, and maintenance activities associated with development of properties. Construction activities would further generate short-term adverse effects on Park visitors due to increased noise levels, air pollutant emissions, and construction vehicles traveling throughout the road system within the Park (e.g., SR 100 Loops, McKenzie Head Road, Park Entrance Road).

## **Infrastructure**

Cumulative impacts associated with future actions in the Park would be offset by improvements related to infrastructure, human health, and recreation. The electrical system upgrade proposed in Phase 2 would alleviate potential power outages, thereby ensuring continual operation of the Park's sewer system and other vital Park operations (e.g., emergency facilities). The decommissioning and dismantling of the sewage lagoon at the Park would remove a potential health concern at the Park. The lagoon will be decanted to remove as much of the water as possible and, pending the sampling analysis, the biosolids will be land applied or, if necessary, taken to a hazardous waste landfill. Increased capacity provided by the Phase 1 and Phase 2 utility infrastructure improvements would expand visitor accommodations, helping to meet the increase in visitors expected with the bicentennial of the Lewis and Clark expedition.

## **4.2 IMPACTS OF ALTERNATIVE 2 (NO ACTION)**

Coastal erosion would continue to occur in the low-lying areas of the park, resulting in potential public health and water quality impacts should the existing sewer system fail or be breached. The antiquated electrical system would continue to be prone to power outages that could prevent the rapid response of emergency services and leave the energy-dependent sewer system vulnerable to interrupted operations and the RV site severely under capacity. The aging systems are also likely to increase maintenance costs with respect to staff time and repairs.

#### **4.2.1 Geology/Soils/Topography**

Under the No Action Alternative, soils and geology would not be directly affected by construction activities, as no ground-disturbing work would occur. However, they are likely to be altered by continued wave and shoreline erosion and flooding. This potential for flooding could lead to a critical situation if the sewage treatment lagoon is not decommissioned and the surrounding soils are contaminated by effluent due to a system failure or breach.

#### **4.2.2 Wetlands/Vegetation**

Under the No Action Alternative, wetlands and vegetation would not be directly affected by construction activities, as no ground-disturbing work would occur. However, they are likely to be altered by continued wave and shoreline erosion and flooding. As noted above, this potential for flooding could lead to a critical situation if the sewage treatment lagoon is not decommissioned and the surrounding wetlands and vegetation are contaminated by effluent due to a system failure or breach.

#### **4.2.3 Water Quality/Floodplains**

Under the No Action Alternative, water quality and floodplains would not be directly affected by construction activities, as no ground-disturbing work would occur. However, the No Action Alternative would result in continued use of the sewage treatment lagoon, which represents a contamination risk to floodplains and water quality in the event of an existing system failure or breach due to coastal erosion or flooding. There are concerns that ongoing coastal erosion could damage the sewage treatment lagoon according to a joint 1999 USCG and Ecology study. The study concluded that the continuing progression of coastal erosion along the western coast of the Park will likely result in breaching of the primary dune by 2009, and possibly flooding lowland areas, including the existing sewage treatment facility (USCG 2002).

#### **4.2.4 Fish and Wildlife**

No changes would occur to the existing utilities and improved areas under the No Action Alternative; therefore, there would be no change in potential effects to fish and wildlife species and their habitat in the project vicinity.

#### **4.2.5 Protected Species**

No changes would occur to the existing utilities and improved areas under the No Action Alternative; therefore, there would be no change from current conditions in potential effects to protected species or their habitat in the project area.

#### **4.2.6 Air Quality and Noise**

There would be no direct impacts to air quality or noise under the No Action Alternative; however, the No Action Alternative would result in continued use of the sewage treatment lagoon and the antiquated water, sewer, electrical, and telephone services. If the lagoon and antiquated utilities were compromised due to coastal erosion and flooding, this would represent an increased burden on park maintenance and operations, which would generate noise disturbance impacts.

#### **4.2.7 Historic Properties and Cultural Resources**

The No Action Alternative would have no direct impact on cultural resources, historic structures, or archaeological sites. Indirectly, continued coastal erosion at the Park could potentially uncover cultural, historic, or archeological resources, however, this probability is highly unlikely.

#### **4.2.8 Land Use and Recreation**

The No Action Alternative would not beneficially impact land use because the sewage treatment lagoon would not be decommissioned, and the underlying land use would not change. The No Action Alternative would also affect recreation in the Park and the Park's ability to serve as a public preserve according to its designation under the Pacific County Comprehensive Plan. For example, visitors' amenities would be severely affected by a reduction in the capacity of the sewer system, which is possible if Ecology declines to issue a permit for the continued use of the sewage lagoon, particularly as there is the existing option of pumping the sewage to the City of Ilwaco's facility. It would also affect the role the Park is scheduled to play in the upcoming bicentennial of the Lewis and Clark expedition (USCG 2002).

#### **4.2.9 Infrastructure**

Under the No Action Alternative, upgrades would not be made to the water, sewer, and electrical systems. This would increase the potential for failures to the systems, which would reduce the capacity and effectiveness of the Park's infrastructure. A particular risk exists for the existing electrical system and sewage lagoon, as the overhead electrical system to the West Campground and the lagoon would remain vulnerable to wave erosion and storm systems. In addition, the single-phase system for both the campgrounds and main Park entrance area would remain prone to power outages, which would jeopardize vital Park operations such as emergency facilities and the continual operation of the sewer system. If upgrades are not made to all utility systems, the existing systems will be inadequate to meet the projected demand and loads that would accompany an expected increase in visitor levels. These are outlined in WSPRC's Master Plan, and are based on developments desired for the Park that would increase facilities and recreational opportunities for visitors.

#### **4.2.10 Socioeconomic Issues and Environmental Justice**

The No Action Alternative would not displace residences or businesses that could affect low-income persons or minority populations; however, not replacing or upgrading the utility systems would restrict the ability of WSPRC to maintain the current level of amenities and services to Park visitors. Over the long term, this decrease in capacity could deter visitors to the Park, or limit the length of their stays. Limited or reduced visitation would have economic impacts related to tourism in the nearby city of Ilwaco and Pacific County. Tourism brings income to communities in the form of expenditures for various services such as accommodations, gasoline, and food.

#### **4.2.11 Cumulative Impacts of Alternative 2 (No Action)**

Cumulative impacts combine the effects of the proposed project and other past, present, and foreseeable future projects. The projects at the Park that could result in cumulative impacts when combined with the No Action Alternative are defined in Section 4.1.11.2. In general, cumulative impacts under the No Action Alternative may affect wildlife, protected species, water quality, park operations, visitor experience, and infrastructure.

## **Wildlife, Protected Species, and Water Quality**

The No Action Alternative would not implement the utility upgrades regarding sewer, water, electrical, and telephone services at the Park. Associated with the lack of improvements, there would be an increased effort placed on maintenance and rehabilitation actions to maintain the antiquated utility systems. This may result in incremental increases in noise associated with continual repairs over time. Additionally, the sewage lagoon would not be decommissioned; therefore, in the event of this system being breached by coastal erosion or storm events, the release of contaminants could degrade water quality and the habitat of wildlife and protected species. Cumulatively, the No Action Alternative would substantially contribute to other past and present actions, and the effects would be long-term, and minor to moderate in intensity.

## **Park Operations, Visitor Experience, and Infrastructure**

Under the No Action Alternative, upgrades would not be made to the water, sewer, telephone, and electrical systems. This would increase the potential for failures to the systems, which would reduce the capacity and effectiveness of the Park's infrastructure. A particular risk exists for the existing electrical system and sewage lagoon, as the overhead electrical system to the West Campground and the lagoon would remain vulnerable to wave erosion and storm systems. In addition, the single-phase system for both the campgrounds and main Park entrance area would remain prone to power outages, which would jeopardize vital Park operations such as emergency facilities and the continual operation of the sewer system. If upgrades are not made to all utility systems, the existing systems will be inadequate to meet the projected demand and loads that would accompany an expected increase in visitor levels. These are outlined in WSPRC's Master Plan, and are based on developments desired for the Park that would increase facilities and recreational opportunities for visitors. Cumulatively, the No Action Alternative (lack of upgrades to utilities) would contribute to other present and future actions, in particular the Park's Master Plan. The combined cumulative effects would be long-term, and minor to moderate in intensity.

## **4.3 OTHER RESOURCE ELEMENTS CONSIDERED IN THE ANALYSIS**

### **4.3.1 Other Values**

The following resources were considered in this analysis, but either determined to be absent or not expected to be affected.

#### **4.3.1.1 *Environmental Justice:***

No disproportionately high and adverse human health or environmental effects on minority or low-income populations are expected to result from implementation of the proposed action as addressed in this EA.

None of the other elements listed below exist in the project area, or would be altered under the Proposed Action; therefore, no impacts would occur. Therefore, these topics were dismissed for further consideration in the EA.

- **Prime/Unique Farmlands**
- **Scenic Resources**
- **Special Area Designations (including Areas of Critical Environmental Concern)**
- **Invasive Non-Native Species**
- **Adverse Impacts to Energy**
- **Wilderness**
- **Wild and Scenic Rivers**

## 5. LIST OF AGENCIES AND PERSONS CONTACTED

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**APPENDIX A**

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**Biological Assessment (BA)**

**APPENDIX B**

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**Photos of the West Campground and Sewage Lagoon**



RV Campground (Pod #1) Sites



Sewage Treatment Lagoon Circulation Road



Sewage Treatment Sand Filter Area



Sewage Treatment Lagoon