CITY OF GEARHART

LOCAL WETLANDS INVENTORY (LWI)

Columbia River Estuary Study Taskforce
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CREST
Columbia River Estuary Study Taskforce

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TECHNICAL STAFF

Allan Whiting

Allan Whiting worked as the wetland coordinator for CREST, and is currently the Senior Ecosystem Planner for PC Trask. He has completed the following wetland courses: Army Corps of Engineers Wetland Delineation Course, Advanced Soils and Hydrology, and has a number of years of experience completing both wetland assessments and delineations. His role was to complete the fieldwork and OFWAM assessments for this project. Allan also created the shape files or wetlands and data points for this project.

Alejandro Bancke

Alejandro Bancke is qualified to assist member jurisdictions with guidance and review of land use planning issues, permits, and other related planning items. He also provides on-site assistance for planning departments. In addition to his planning skills he has extensive experience with GIS mapping, database management, GIS analyses, and cartographic production. He received his Master of Urban and Regional Planning degree from Portland State University (PSU).

April Silva

April received her Undergraduate degree in Natural Resources with a Minor in Fisheries and Wildlife from Oregon State University. She currently works for CREST as their Wetland Scientist. She has completed the Army Corps of Engineers Wetland Delineation Certification Program, as well as courses in soil science and wetland ecology from Oregon State University. She participated in the second phase of field data collection and report editing for this project.

Christy McDonough

Christy earned a Master of Studies in Environmental Law from Vermont Law School. Her role in this project was to compile all the information and present it in report format. She also served as a data recorded during fieldwork, and assisted with the creation of maps to include in the report.

DEFINITIONS

HYDROGEOMORPHIC (HGM) CLASSIFICATION – The Hydrogeomorphic (HGM) based classification system classifies wetlands based on their hydrogeomorphic features (water dynamics, topography, and geological setting).

RIVERINE FLOW-THROUGH (RFT) – Sites are associated with channels of streams and rivers. Most of their surface water is visibly flowing during the wet season and is not substantially ponded by natural of artificial constrictions. Many RFT sites have evidence of active erosion and deposition, and have a dynamic, fluctuating water regime that closely matches that of water in the contiguous channel.

RIVERINE IMPOUNDING (RI) – Sites are associated with channels of streams and rivers. Most of their surface water during 2-year flood events is visibly and substantially ponded. Water flow is usually unidirectional, but during floods may become backed up and show no clear travel path. Ponding is caused by channel of floodplain constructions. Most RI sites have a dynamic, fluctuating water regime.

DEPRESSIONAL CLOSED; NON-PERMANENTLY FLOODED (DCNP) – Sites are located in topographic depressions and are fed primarily by overland flow and interflow from surrounding uplands. Water movement at the site is primarily vertical. Nonpermenantly flooded sites are without surface water for at least one day of most years and have no outlet or other water connection to a permanent river more than once every three years.

DEPRESSIONAL CLOSED; PERMANENTLY FLOODED (DCP) – Sites are associated with topographic depressions and are fed primarily by overland flow and interflow from surrounding uplands. Water movement is primarily vertical and depth fluctuates seasonally. Permanently Flooded sites are characterized by having at least 0.25 acres of standing water during the driest season of most years, having no outlet channel or connection to a permanent river or lake during a majority of years in any 10-year period, and vegetation cover that is never more then 10% Sphagnum moss. Vegetation is primarily comprised of plants whose wetland indicator status is OBL.

SLOPE; HEADWATER (HS) – Sites are associated with vertically inclined topography. Hydrology at these sites is dominated by groundwater inputs. Headwater sites in general have an outlet channel but no inlet channel; they are visibly sloping and located in topographically high to moderate positions. These sites can either be permanently of non-permanently flooded, although they typically have no standing or surface water unless the outlet channel has been impounded.

SLOPE; VALLEY (VS) – These sites are located in topographically low positions on the landscape. They have varying characteristics that complicated the identification of this class of wetland. Valley sites may be permanently flooded, they may have an outlet channel but no inlet channel. These sites always have little to no standing or surface water in pools or channels, unless the outlet channel is impounded. Vegetation is typically comprised of "fen" plant species assemblages.

ESTUARINE FRINGE; EMBAYMENT (EFB) – These are sites where hydrodynamics are predominantly influenced by the daily bi-directional movement of tides. EFB sites usually receive more of their water inputs from the ocean rather then from rivers. These sites do not always have surface water and emergent vegetation present. The geomorphic type of estuary in which these sites are located heavily influences these sites. These sites exhibit high productivity as a result of mixing salt and freshwater. Tidal currents determine the extent of salt-water intrusion upriver. This class includes salt marshes, brackish sloughs, lower tidal channels, and brackish lagoons.

ESTUARINE FRINGE; RIVER SOURCES (EFRS) – Site where mainly the daily bi-directional movement of tides influences hydrodynamics. These sites usually receive more of their water inputs from the ocean rather then from rivers, and do not always have surface water or emergent vegetation present. River Sourced sites receive more of their water supply from rivers rather then the ocean. Incoming tides can cause a noticeable change in velocity reduction and reversal of river currents. Salinity varies with tide and rain events. Water levels are similarly subject to change depending on tidal patterns and rain events; includes submersed aquatic vegetation, woody debris, emergents and unvegetated tidal flats.

FLATS – These sites receive water inputs through direct precipitation, later subsurface flow or runoff. This class includes vernal pools, wet meadows, farmed wetlands, ephemeral ponds, and wet prairies. Rises in surrounding topography, impeding subsurface layers, and seepage from surrounding water bodies may cause ponding at these sites. Flats are typically found in shallow basins with broad terraces.

WETLANDS – Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

WETLANDS CLASSIFICATIONS (COWARDIN) – The following are definitions from the Classifications of Wetlands and Deepwater Habitats of the United States (USFWS, 1979):

AQUATIC BED – Includes wetlands and deepwater habitats dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years.

EMERGENT WETLAND – Characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Perennial plants usually dominate these wetlands.

ESTUARINE SYSTEM – Includes deepwater tidal habitats and adjacent tidal wetlands that are usually semi-enclosed by land but have open, partly obstructed, or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land.

FORESTED WETLAND – Includes areas dominated by woody vegetation greater than 6m (20 feet) tall.

LACUSTRINE SYSTEM – Wetlands and deepwater habitats with all of the following characteristics: (1) situated in a topographic depression or a dammed river channel; (2) lacking trees, shrubs, persistent emergents, emergent mosses or lichens with greater that 30% area coverage; and (3) total area exceeds 20 acres. Lacustrine waters may be tidal or non-tidal, but ocean-derived salinity is always less than 0.5 parts per thousand.

PALUSTRINE SYSTEM – Includes all non-tidal wetlands dominated by trees, shrubs, persistent emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below .5 parts per thousand. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 20 acres; (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of the basin less than 2m at low water; and (4) salinity due to ocean-derived salts less than .5 parts per thousand.

RIVERINE SYSTEM – Includes all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts in excess of .5 parts per thousand.

SCRUB-SHRUB WETLAND – Includes areas dominated by woody vegetation less than 6m (20 feet) tall.

UNCONSOLIDATED BOTTOM – Includes all wetland and deepwater habitats with at least 25% cover of particles smaller than stones, and a vegetative cover less than 30%.

WETLAND HYDROLOGY – In general terms, permanent or periodic inundation or prolonged soil saturation sufficient to create anaerobic conditions in the soil.

HYDRIC SOILS – Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part.

HYDROPHYTIC VEGETATION – Plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.

RIPARIAN AREAS – Lands adjacent to rivers, streams, lakes, ponds and other water bodies. They are transitional between aquatic and upland zones, and as such, contain elements of both aquatic and terrestrial ecosystems. They have high water tables because of their close proximity to aquatic systems, soils that are usually made up of water-carried sediments, and some vegetation that requires free (unbound) water or conditions that are more moist than normal.

WETLANDS REGULATION – Wetland in Oregon are regulated by the U.S. Army Corp of Engineers through Section 404 of the Clean Water Act and the OR Division of State Lands through the Removal Fill Law (OARS 196.800-196.990)

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1. INTRODUCTION

1.1 SUMMARY

The Columbia River Estuary Study Taskforce (CREST) conducted a Local Wetlands Inventory for the City of Gearhart. The study area includes all land within the city limits and urban growth boundary (UGB). The total acreage of the study area is 1,219 acres or 1.9 miles^2. All wetlands 0.5 acres and larger were inventoried and evaluated using the Oregon Freshwater Wetland Assessment Methodology (OFWAM). If identified, wetlands 0.5 acres or smaller in size were included in the inventory as possible wetlands.

Wetlands within the study were inventoried and assessed according to the Oregon Administrative Rules 141-068-0180 to 141-086-0390 (2001). Eight (8) wetland units (W1-W8) were identified and inventoried. Wetlands were grouped based on hydrologic function, landscape position, soils, wetland classification, management and land use impacts. Of these eight wetlands, four (W1, W2, W6, & W8) are associated with a defined stream channel. Four (4) of the wetlands (W3, W4, W5, W7) are either associated with drainage ditches within development, or heavily modified as a result of land use.

Offsite data was collected and organized prior to field sampling and data collection. Areas that appeared to be wetlands based on high-quality public domain lidar (light detecting and ranging) data and Clatsop County soil survey data, NWI maps, state approved wetland delineations, and aerial imagery were selected as field sampling sites. Wetlands with different cover classes and those that may have been modified by land use activities were also selected for field verification. Wetlands were determined and/or verified by sample plots performed in the field. Where landowners denied property access, offsite wetland determination methods were implemented. Paired plots were performed to verify uncertain wetland boundaries. One sample plot was completed for wetlands with unreliable indicators, and wetlands whose indicators may have been altered by land use activities.

Wetland W6 was determined to have the highest assessed wetland restoration potential, as a result of the wetland's high degree of functional degradation or impairment resulting from land use alterations. The wetland units with the highest conservation/restoration potential are W1, W4, and W8 because of their existing natural buffers, landscape position and current ecological health.

There are four (4) artificial bodies of water found within the study area; of these three (3) are water hazards on a golf course, and the fourth is a man made pond in the eastern area of the UGB. Within the study area are two named creeks, Neacoxie Creek and Mill Creek. Neacoxie Creek and Mill Creek are listed as essential salmon habitat (ESH). Neacoxie Creek runs from the northern edge of the study area through downtown Gearhart and empties into the Necanicum Estuary. Mill Creek crosses in and out of the eastern border of the study area and eventually flows into the Necanicum Estuary. The Necanicum River is designated critical salmon habitat, and while it drains in to the same estuary as the Neacoxie it is outside of the study area.

Locally significant wetlands were also identified using OFWAM, with their significance determined by the wetlands ability to provide a high function in at least one of the following four categories: Wildlife habitat, Fish habitat, Water quality, and Hydrologic control. All of the wetland units (W1-W8) qualified as Locally Significant Wetlands.

1.2 Purpose of Local Wetland Inventories

Historic structure and function of unique coastal wetlands within the study area have been modified by land use. Hydrology has been altered and filling activities have fragmented these areas, compelling the need for a planning framework that provides direction for prioritizing protection, restoration, and compensatory mitigation. The LWI process is intended to provide such an approach. This is done through is a systematic survey of a large geographic area to locate and map wetlands and classify them by type. Local Wetland Inventories, wetland functions and values assessments, and locally significant wetlands determinations are governed by the Oregon Administrative Rules (OAR's). An inventory of all wetlands 0.5 acres or larger in area is conducted within a local jurisdiction using the standards and procedures of OAR's 141-86-180 through 141-86-240. The LWI consists of wetland maps and a report. The report includes additional information about the inventory area and the individual wetlands, including: total acreage of wetlands; location, size and classification of each wetland; description of each wetland; and all tax lots containing wetlands (Oregon Department of State Lands).

As part of Goal 5 Land Use Planning, local governments are required to utilize LWI maps, or National Wetland Inventory (NWI) maps (though less accurate) when reviewing proposals for development within their jurisdictional boundary. The purpose of Goal 5 is to protect natural areas of significant importance, and conserve historic areas and open spaces. The LWI maps assist in identifying these potentially significant areas, as well as serve as a preliminary identification of wetlands that may be subject to permit requirements under the Oregon Removal-Fill Law.

1.3 Public Involvement

Landowner involvement and property access is a critical element of Local Wetland Inventories, as many potential wetlands exist on privately owned property. On site data collection assists in refining wetland boundaries for mapping purposes. On site data also provides information on the condition of wetlands, making the OFWAM evaluations more accurate. In 2009 extensive landowner outreach was conducted in order to acquire more on site data. Outreach included a mass mailing to selected landowners, and two public open houses. Using previously collected data, comments from DSL, and ancillary information wetlands in question and wetlands with uncertain boundaries were determined. The strategy for landowner outreach was based on these potentially problematic wetlands, helping target properties for ground truthing.

2. METHODS

2.1 Study Methodology

Before beginning fieldwork available off site data was collected and reviewed in order to determine the approximate location of potential wetlands, and their associated boundaries. The information utilized, includes high-quality public domain LiDAR data,USGS topographic quadrangles, the Soil Survey for Clatsop County, Oregon, NWI maps, and color aerial photography from 2009. In addition, a previous LWI was made available by City staff that enabled a more precise understanding of the extent and distribution of wetlands within the city limits. Based on available offsite information sample areas were prioritized for ground truthing. Where recent land use may have altered wetland locations and/or boundaries, or where maps had contradicting wetland boundaries.

Potential wetlands identified from offsite data were selected for field verification. Potential wetlands include all 0.5 acres and larger that exhibit one or more wetland parameters. Sampling locations for wetlands were chosen in order to document a change in a wetland boundary or verify a type of plant community visible in the aerial photograph. Plot locations were also chosen so as to best characterize the specific wetland. Paired plots were chosen based on landowner access and a sites ability to approximate wetland/upland conditions throughout the study area. Following landowner outreach, potential wetlands and their boundaries were checked using either off-site or on-site methods as described below.

2.2 Routine Off-Site Determination

Where on site access was not available but visual observations were possible by either driving or walking the site boundaries, observations regarding plant communities and hydrology were performed. All other off site characterizations were confirmed based on the existing information cited above in addition to precise interpretation of lidar data and 2009 orthophotos using ArcView GIS. Data was recorded onto write in the rain data forms, recoding indicators, plant communities, soil type, location, and site specific notes.

2.3 Routine On-Site Determination

Where on site access was available, on site observation and inspection of soils, vegetation, and hydrology were made. Wetland verifications were made using the Field Guide for Wetland Delineation 1987 CORPS of Engineer Manual. Sites were selected to achieve an adequate sampling of the diversity of wetland classes within Gearhart's UGB. Soil pits were excavated to a depth of at least 18" (where feasible) and soil profiles examined for indication of hydric soils and wetland hydrology (see figures 1 & 2). Soil data collection utilized Munsell Soil-Color Charts to determine value, chroma, and hue. Hydrology was examined within the soil pit, evaluating factors such as soil saturation and depth to the water table. One primary hydrologic indicator or two or more secondary indicators were met in all of the sites that were qualified as having wetland hydrology.

A visual estimate of dominant species was conducted at each sampling location for herb, shrub, and woody layers. A $1m^2$ quadrant was used for each sample plot for the herbaceous plant layer, with shrubs recorded to a 10' radius, and trees recorded to a 20' radius. A priority index was calculated for each on site data plot. A data sheet was produced for each field plot. Data sheets were generated for both wetland and upland field plots. Fieldwork was conducted in both summer and winter months. No wetland boundaries were flagged or marked in any way in the field. Plant nomenclature and indicator status were assigned using the USFWS National List of Plants Species that Occur in Wetlands: Oregon; 1988 Region 9 List & 1993 Supplement List. Plant species name and percent cover were recorded. The FAC-neutral test and 50/20 methods were used to determine if the vegetation met wetland (hydrophytic vegetation) criteria.

Figure 1. On-site determination soil sampling

Figure 3. On-site determination hydrology sampling

Figure 2. On-site determination vegetation sampling

2.4 Wetlands Mapping

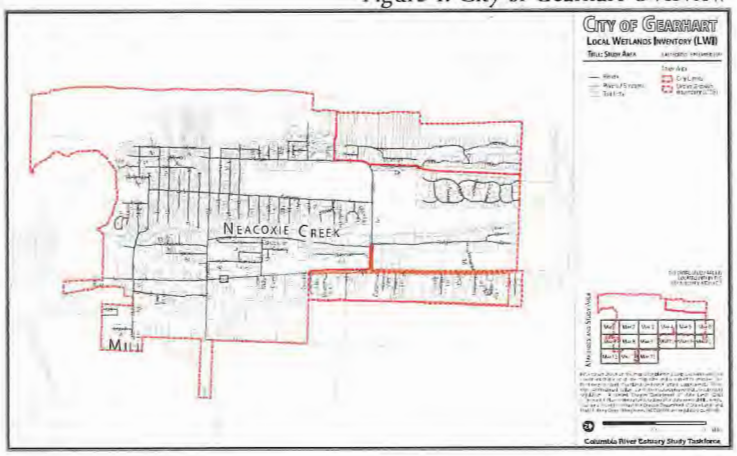
Aerial photographs were obtained through the United States Department of Agriculture (USDA) Natural Resources Conservation Services (NRCS) for the National Agricultural Imagery Program (NAIP) website (http://datagateway.nrcs.usda.gov/GDGHome.aspx) and utilized primarily for off-site interpretation and baseline mapping for additional thematic layers (i.e. delineation boundary, data plot locations). The aerial photo dataset were acquired in 2009 containing from the NAIP. The NAIP acquires digital ortho imagery during the agricultural growing seasons in the continental U.S.. A primary goal of the NAIP program is to enable availability of ortho imagery within one year of acquisition. The NAIP provides two main products: 1 meter ground sample distance (GSD) ortho imagery rectified to a horizontal accuracy within +/- 5 meters of reference digital ortho quarter quads (DOQQ's) from the National Digital Ortho Program (NDOP) or from the National Agriculture Imagery Program (NAIP); 1 meter GSD ortho imagery rectified within +/- 6 meters to true ground. The tiling format of NAIP imagery is based on a 3.75' x 3.75' quarter quadrangle with a 300 meter buffer on all four sides. The NAIP imagery is formatted to the UTM coordinate system using the North American Datum of 1983 (NAD83). The NAIP imagery may contain as much as 10% cloud cover per tile. This file was generated by compressing NAIP imagery that cover the county extent. Two types of compression may be used for NAIP imagery: MrSID and JPEG 2000. Target value for the compression ratio is (15:1). At the completion of fieldwork wetland boundaries were confirmed and adjusted to reflect underlying aerial photography and lidar data.

Base map data including, but not limited to parcel boundaries, city limits, urban growth boundaries, and streets, were provided by the Clatsop County land information system (LIS). Other mapping information sources include: United States Geological Survey (USGS) 7.5" topographic maps, National Wetland Inventory (NWI), Oregon Soil Survey Data for Clatsop County, Oregon Department of Fish and Wildlife (ODFW) fish presence and absence maps, and Oregon Geospatial Enterprise Office (GEO).

2.5 Wetland Quality Assessment

Wetland function and condition assessments were completed for mapped wetlands using the Oregon Freshwater Wetland Assessment Methodology (OFWAM). The quality of a wetland's function, value, and condition is determined by answering specific questions related to specific wetland functions and conditions for each of the wetlands. A watershed characterization for the Neacoxie Watershed was completed, as well as an assessment for each individual wetland unit. The wetland functions used in the assessment of wetlands are: Wildlife Habitat, Fish Habitat, Water Quality, and Hydrologic Control. Function assessments were not conducted in estuarine sections of the study area because of the inherent limitations of OFWAM in ocean-derived wetlands.

Figure 4. City of Gearhart Overview



3. STUDY AREA CHARACTERISTICS

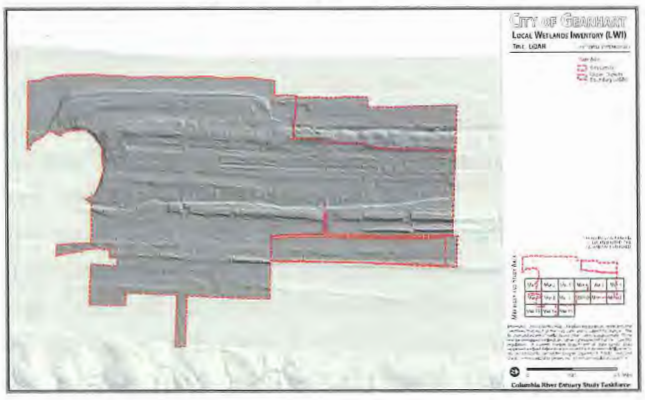
3.1 SETTING

Gearhart is located in Northwest Oregon along the Oregon Coast in Clatsop County. The City is located between Seaside and Warrenton, and is one of the oldest beach communities on the Oregon coast. The Gearhart Urban Growth Boundary encompasses 1,219 acres or 1.9 miles^2. The population of Gearhart was 1,027 in 1990 and has since decreased to 995 by 2000 (2000, U.S. Census). Historically, Gearhart's population has been steadily increasing. In 2000, the majority of the population was between the ages of 45 and 64, with the median age at 46.7. The nearest major highway is U.S. Highway 101, which runs through the city. The closest airport is the Seaside Municipal Airport, which is not located within the study area. The City's water system was developed in 1951 and is managed by the City. Gearhart purchases their water from the City of Warrenton and utilizes septic systems throughout the City. Gearhart is located within the Necanicum River basin.

Before European human development of the area, Gearhart was part of a larger coastal prairie system of the Clatsop Plains. This system was dominated by stabilized sand dune formations partially susceptible to seasonal changes in aeolian forces. These forces shifted the orientation northward during winter months and southward during summer months. In between these sandy dunes were stabilized swales that captured drainage runoff from the areas high precipitation patterns and groundwater inputs from the Clatsop Plains aquifer. During winter rain events these areas would turn into a network of low gradient streams whose signatures are still prominent within the City of Gearhart, most notably Neacoxie Creek. The eastern edge of study area express remnant characteristics of peatland bottomlands as witnessed in the Gearhart Fen owned and managed by The Nature Conservancy. This "poor fen" is not fully understood, but is characterized by slow moving water collected from groundwater aquifers and runoff from the Coastal Mountains. Its most defining characteristics is the extremely thick layers of organics that collect there over time as well patches of sphagnum moss.

Upon the arrival of Lewis and Clark, the area was said to be covered by rolling grasslands. Since European settlement, plantings of exotic beach grass and native shorepine were used to further stabilize the dunes. Many of these areas are now dominated by extensive invasives such Scotch Broom and exotic pasture grasses. Through the course of human development in the Gearhart area hydrology has been modified and simplified through diversion such as ditching and culverts.

Figure 5. City of Gearhart LiDAR Hillshade



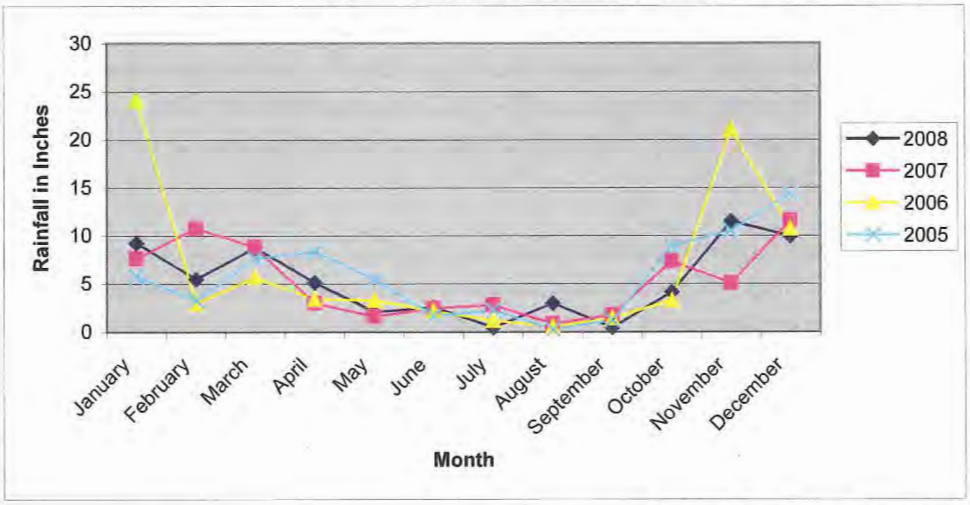
STUDY AREA (ACRES)	1,219
TOTAL WETLANDS (ACRES)	155

Table 1. Study Area Charcteristics

3.2 Climate

Gearhart has a temperate marine climate. The average annual precipitation is 74.46", with December being the wettest month. The average monthly high temperature is 70°F with September being the warmest month. The average monthly low temperature is 37°F with January being the coldest month. Figure 6 shows precipitation patterns for the area.

Figure 6. Precipitation Patterns for the North Coast 2005-2008



Source: http://www.ocs.orst.edu

3.3 Topography

The City of Gearhart is located adjacent to the Pacific Ocean along the Oregon Coast. This area is often referred to as the Clatsop Plains. The landscape is composed of long, parallel ridges of sand. Elevation in the Neacoxie Creek watershed ranges from sea level to 165' at its highest point. Low gradient stream channels form intermittently within remnant interdunal system. Wetland occurrence is still maintained by the distinct topography of alternating dune ridges and interdunal swales that parallel the coastline.

3.4 Hydrology

The Necanicum River flows into the Pacific Ocean and is the first estuary south of the Columbia River on the north coast of Oregon in Clatsop County. The watershed includes the City of Gearhart. There are approximately 28 tributaries that make up the Necanicum watershed. The headwaters of the Necanicum River begin at river mile 21.2 at which the elevation is 1360'. It is estimated that 50% of the marsh area in the Necanicum Estuary has been filled leaving a 278 acre estuary consisting of the Necanicum River, Neawanna Creek, Mill Creek, and Neacoxie Creek. Gearhart is located in the Neacoxie subwatershed. Anthropogenic impacts have manifest in the fragmentation of historic hydrology patterns influencing the wetland structure of the Gearhart area. Previously a loosely connected mosaic of coastal lakes, sloughs, interdunal swales, these patterns have shifted in a number of ways. In particular the eastside of study area agricultural activities in the form of ditching, tiling, and flood control structure (i.e. tidegates) have altered freshwater flow patterns from the north and tidal patterns from the south (i.e. Mill Creek). Road fill and culvert installation associated with the City's development needs generally run perpendicular to the north-south interdunal ridges further disconnecting and/or restricting flow patterns from the Neacoxie watershed and lower elevation swales that run parallel to sand dune patterns.

The Necanicum River watershed has an extensive floodplain area that occupies about seven percent (7%) of the watershed. Estuarine and palustrine wetlands reside adjacent to the mouth of the river and in the Neacoxie and Seaside sub-watersheds, which are often inundated during flooding periods. The Necanicum River, Neacoxie Creek, and Mill Creek are designated essential salmon habitat.

The study encompasses 1,219 acres, or 1.9 miles^2 within the Clatsop Plains. While the study area is part of the Necanicum Watershed, the Necanicum River itself is not inside the Gearhart City Limits and as such is not part of the study area. Neacoxie Creek and Mill Creek both run at least partially within the study area, and both are designates as essential salmon habitat. NOAA National Marine Fisheries Service lists the Neacoxie subwatershed to be within the Oregon Coast Coho salmon Evolutionary Significant Unit (ESU) where they are listed as threatened under the Endangered Species Act (ESA), and the Oregon Coast Steelhead ESU where they are listed and a species of concern.

One unnamed slough also is located partially on the very eastern portion of the study area, originating from the hills to the east. Between Neacoxie Creek and HWY 101 a series of wetlands runs north to south through neighborhoods and downtown. These wetlands have very restricted hydrologic connection as a result of undersized culverts beneath roads, and partially developed riparian areas, forming a drainage ditch for much of their extent.

The hydrology for the wetlands in Gearhart has been altered significantly for drainage and flood control thereby confining flow patterns and disconnecting areas from its floodplain. These alterations are in the form of culverts, roadbed, and ditching. For some areas of Gearhart this has effectively slowed down flow, creating stagnant ponding in the upper reaches of its stream channels.

3.5 Soils

Remnant dune ridges in the study area are underlain by excessively drained and somewhat excessively drained Gearhart and Waldport soils (described below). Interdunal swales become exceedingly more cohesive as you travel east to the Coastal Mountains. These wetter swales are typically underlain by Warrenton loamy fine sand and by Bergsvik or Brallier mucky peats.

The Gearhart Series consists of very deep, somewhat excessively drained soils on stabilized sand dunes. These soils formed in eolian sand. The surface layer consists of leaves, needles, moss, and twigs. The top 11" of the subsoil is a black fine sandy loam with many fine and very fine roots. 11" to 16" inches are dark brown loamy fine sand, commonly with reddish brown streaks. The substratum is a dark to light gray fine sand.

The Waldport Series consists of very deep, excessively drained soils on stabilized sand dunes. These soils formed in dune sand. The surface layer between 0 to 3 inches is very dark brown fine sand, grayish brown, and light gray. Between 3" to 5" the soil is dark or pale brown fine sand, from 5"-15" pale brown light grey fine sand, and the substrate is light brownish grey fine sand.

The Warrenton Series consists of very deep, very poorly drained soils on long, narrow interdunal areas. These soils formed in sand. The surface layer is typically black muck consisting of twigs, roots, needles, and leaves. The next layer from 0" to 11" is black loamy fine sand, with many fine and medium prominent dark reddish brown and reddish brown mottles. The next horizon between 11" and 22" is very dark gray loamy

fine sand, with many fine, medium, and large prominent dark reddish brown, reddish brown, and yellowish red mottles. From 22" to 60" exists very dark gray fine sand with few fine and medium prominent reddish brown mottles.

Wetland Status	Explanation
Obligate Wetland (OBL)	Occur almost always (estimated probability >99%) under natural conditions in wetlands.
Facultative Wetland (FACW)	Usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.
Facultative (FAC)	Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).
Facultative Upland (FACU)	Usually occur in non-wetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%).
Obligate Upland (UPL)	Occur almost always (estimated probability >99%) under natural conditions in non-wetlands.
No Indicator (NI)	Insufficient information was available to determine an indicator status.

Table 2. Wetland Plant Status (USFWS)

3.6 Vegetation

The U.S. Fish and Wildlife Service National List of Plant Species that Occur in Wetlands: Northwest Region 9 has established different plant categories for indicating the frequency specific vegetation occurs in a wetland. These "indicator code status" includes the following: obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and obligate upland (UPL). All plant species that were visually observed in the study area from offsite observations and onsite vegetation plots were recorded and inventoried along with their indicator status (Appendix B).

4. LWI DISCUSSION

4.1 Local Wetlands Inventory Results

Wetlands in the study area were classified according to two different classification schemes, Cowardin and Hydrogeomorphic (HGM). The following Cowardin wetland classes are present within the study area: Palustrine Aquatic Bed, Permanently Flooded (PABH), Palustrine Forested, Seasonally Flooded (PFOC), Palustrine Scrub-Shrub, Seasonally Flooded (PSSC), and Palustrine Emergent (PEM). The following HGM classes are present in the study area: Estuarine embayment, Estuarine river sourced, Riverine Impounding (RI), Riverine Flow-Through (RFT), and Depressional Closed Non-Permanently Flooded (DCNP).

Property access was granted throughout the majority of the study area allowing us to perform paired plots and more accurately define wetland boundaries. However, the northeast corner of the study was problematic as a result of limited property access. The area is bordered on the west by HWY 101, and by an old railroad grade to the east. The land has a depressional topography running along the toeslope of the railroad grade. This has created an ephemeral, depressional wetland whose source hydrology is both run off and direct precipitation.

4.2 Artificial Bodies of Water

Four (4) artificial bodies of water occur in the study area. Three (3) of these are water hazards in the golf course in the northwestern section of Gearhart. They are 0.1 acres, 0.16 acres, and 0.18 acres in size. The fourth body of water is a man made pond in the southeastern portions of Gearhart for industrial use and is 4.3 acres in size. All four (4) of these artificial bodies of water are isolated from other wetlands, there is no surface water connection but other wetlands do occur within a 1 mile radius of their locations.

4.3 Possible Wetlands

Wetlands less than 0.5 acre in size were labeled as Possible Wetlands and included in the LWI maps as individual points. In the study area one possible wetland was identified and mapped.

4.4 Locally Significant Wetlands

Locally significant wetlands are determined using the OFWAM process, as directed under OAR 141-86-300 to 141-86-350. The following table outlines the selection criteria. Locally Significant Wetlands are defined as wetlands that provide specific functions and/or values for local area.

Figure 7. Locally Significant Wetlands Criteria

Mandatory Criteria

1. *The wetland performs any of the following functional levels based on the OFWAM assessment –*
   a. *"Diverse" wildlife habitat*
   b. *"Intact" fish habitat*
   c. *"Intact" water quality functions*
   d. *"Intact" hydrologic control functions*
2. *The wetland or a portion of the wetland occurs within one-fourth of a mile from a water quality limited DEQ 303(d) list, and the wetland's water quality function is described as "intact", "impacted" or "degraded".*
3. *The wetland contains one or more rare plant communities.*
4. *The wetland is inhabited by any species listed by the state or federal government as sensitive, threatened, or endangered.*
5. *The wetland has a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmon, and the wetland is determined to have "intact" or "impacted" or "degraded" fish habitat function.*

Optional Criteria

1. *The wetland represents a locally unique plant community: wetland is or contains the only representative of a particular native wetland plant community in the UGB.*
2. *The wetland is publicly owned and determined to have "educational uses", and any such educational use by an organization or school is documented for that wetland.*

Artificially created wetlands, ponds, and ditches are excluded from consideration. Wetland units W1, W2, W3, W4, W5, W6, and W8 all qualify for LSW's because they all perform at the highest functioning level for either wildlife habitat, fish habitat, pollutant removal, or flood control and water supply. Wetlands W1, W4, W6, and W8 have Diverse Wildlife Habitat. Wetland unit W8 has the highest functioning rating for Fish Habitat, and although none of the wetlands meet the highest functioning rating for Water Quality, all are Intact for the Hydrologic Control function.

Subarea	Provides Diverse Wildlife Habitat	Intact Fish Habitat	Intact Water Quality	Intact Hydrologic Function
W1	X			X
W2				X
W3				X
W4	X			X
W5				X
W6	X			X
W7				X
W8	X	X		X

Table 3. Locally Significant Wetlands Results

Figure 8. Local Wetlands Inventory

4.5 Vacant Former Wetlands

Vacant former wetlands, when present, provide potential mitigation sites. Under OAR 141-086-0210 they are defined as "areas 5 acres or larger in size and having relict (dewatered) hydric soils". These areas will have positive indicators for relict hydric soils, meaning at one time they experienced wetland hydrology but are currently disconnected from historic source hydrology. Land use may have altered vegetation and hydrology indicators as well. Former wetlands of this kind may offer restoration potential depending on current land use, ownership, and condition. Aerial imagery and on onsite evaluations were conducted to determine if any sites within the study area qualified as Vacant Former Wetlands. No sites within the study area met the definition for Vacant Former Wetlands.

5. CONCLUSION

The study area encompasses 1,219 acres, of these approximately 155.06 acres were mapped as wetlands. Wetlands were grouped into eight separate wetland units, W1 - W8. The grouping of wetland units was based primarily on connectivity, management practices, and source hydrology, with secondary factors including location in the watershed, topography, and land use impacts. These groups were used to complete the OFWAM, including watershed and wetland characterization, wetland functional assessments, wetlands of special interest for protection, and locally significant wetlands.

The majority of wetland groups represent the geological history of Gearhart. The remnant sand dunes created a wetland orientation that runs north to south. This is further emphasized by road development that similarly runs north to south. These wetlands are greatly influenced by the topography of the landscape, draining to the south, as their orientation would suggest. A small mountainside to the east of the Gearhart UGB drains into Mill Creek in the southeast corner of the UGB. These wetlands similarly drain to the south, towards the Necanicum Estuary.

Estuarine wetlands extend from mud flats in the Necanicum estuary to the head of tide in the Necanicum River, Neacoxie Creek (W1), Wetland W2, and ~~the tributary~~ to Mill Creek (W8).

Wetland	Size (acres)	Cowardin	HGM
W1	27.94	PABH, PFO, PEM	Riverine flow through; Riverine impounding
W2	17.84	PFO, PSSC, PEM	Riverine flow through; Riverine impounding
W3	20.16	PABH	Riverine impounding
W4	13.39	PABH, PSSC	Depressional closed non-permanently flooded
W5	6.37	PSSC, PEM	Riverine impounding
W6	40.59	PFOC, PSSC, PEM	Riverine flow through; Riverine impounding
W7	11.17	PSSC, PEM	Depressional closed non-permanently flooded
W8	17.61	PFO, PSSC, PEM	Riverine flow through; Riverine impounding

Table 4. Wetlands Acreage and Classification

Estuarine wetlands were included in the inventory, but not included in the OFWAM assessments, or mapped as one of the primary wetland groups. While ecologically invaluable, estuarine wetlands are protected under different Oregon Administrative Rules then fresh water wetlands. These include Goal 16 Estuarine Resources, under OAR 660-015-0010(1) and Goal 17 Coastal Shorelands under OAR 660-015-0010(2). Fresh water wetlands are protected under Goal 5 Natural Resources, Scenic and Historic Areas and Open Spaces under OAR 660-015-000(5). Each planning Goal is used to implement best management practices for the development and protection of natural resources in the state of Oregon. These resources include rivers, scenic waterways, wildlife habitat, natural areas, etc. Estuarine and Shorelands include wildlife habitat, water quality, economic and recreational activities in these areas.

W1 encompass Neacoxie Creek and its associated wetlands. These make up a wetland corridor that runs north to south through the UGB. They are listed as critical salmon habitat, however fish passage may be restricted as a result of undersized culverts and a tidegate. Dominant vegetation communities range from mature Sitka spruce, crab apple stands, to slough sedge and Douglas Spirea.

Wetlands W2, W3, and W4 are associated with a series of hydrologically fragmented wetlands that also runs north to south through the UGB. Historically, this disconnected network of wetlands was most likely similar to Neacoxie Creek in hydrology and habitat conditions. They reside to the east of Neacoxie Creek and west of HWY 101. The wetlands associated with this slough are grouped into smaller units than those along the Neacoxie as a result of their highly impacted hydrologic connection to each other, management and land use impacts. They consist of shrub scrub to open ponded wetlands with persistent emergent vegetation.

W5 is located between W4 and HWY101. It is primarily a depressional wetland that had been modified into a drainage ditch parallel to the highway. It is a shrub scrub wetland with willows as the dominant plant species. The western edge is defined by remnant sand dunes, where the shrub scrub plant community transitions into forested uplands. The southern edge of this area has been delineated in the past (reference WD 96-0577). The wetland has standing water for the duration of the growing season.

W6 is located in the southeastern area of the UGB; and its southern portion is heavily impacted by land use and hydrologically disconnected by roads and urban development. It is surrounded by agriculture and housing development at different areas. Like most other defined channels in the study area it too runs north to south following historic landscape formations. W6 is bordered by a dunal formation to the west and an old railroad grade to the east. In addition, the northern portion of W6 is unique in that it is likely the southern extension of a larger peatlands wetland, also known as a coastal fen, located north of the study area boundary. Coastal fens in Oregon are floristically distinct from those located north of the Columbia River and those at higher elevations in the Cascades and the Coast Ranges, making them unique in North America and highly ranked elements in the State Heritage Program methodology.

W7 wetland unit was problematic as a result of limited property access and a high degree of land use impacts. Many of the wetlands were mowed back yards, and all reside at the toe slope of an old railroad grade, which results in ponding during high precipitation events as a result of runoff.

W8 is actually a relatively intact, and contiguous wetland that extends outside the UGB and back again. These wetlands are located in the very southeast most area within Gearhart's UGB. Property access was very limited so the wetlands had to be assessed from offsite data sources and adjacent property. The wetlands appear to have a defined channel that is identified as essential salmon habitat. The dominant plant community is comprised of OBL to FAC plants including Douglas Spirea, Slough Sedge, and willow species. These wetlands have standing water, outside of the defined channel, for the duration of the growing season and appear to provide a high degree of edge habitat.

Wetland	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control
W1	Diverse	Impacted or Degraded	Impacted or Degraded	Intact
W2	Some	Impacted or Degraded	Impacted or Degraded	Intact
W3	Some	N / A	Impacted or Degraded	Intact
W4	Diverse	N / A	Impacted or Degraded	Intact
W5	Some	N / A	Impacted or Degraded	Intact
W6	Diverse	Impacted or Degraded	Impacted or Degraded	Intact
W7	Some	N / A	Impacted or Degraded	Intact
W8	Diverse	Intact	Impacted or Degraded	Intact

Table 5. OFWAM Results and Summary

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APPENDIX A . WATERSHED CHARACTERIZATION

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Watershed Characterization Questions	
1. What is the name of the drainage basin that contains the study area	North Coast
2. What is the Neacoxie watershed's area in square miles?	16
3. Calculate the average slope of the Neacoxie watershed.	1% - 5%
4. Is the stream flow in the watershed modified by dams, channelization, or levees? a. Tributary streams to the mainstem are modified b. Mainstem steam is modified c. Stream flow is not modified	b
5. Is water being taken out of the stream through active diking, drainage, or irrigation districts in the watershed upstream of the study area? a. Yes b. No	b
6. What is the dominant land use in the watershed upstream from the study area? a. Urbanization b. Urbanizing (mix or urban, agriculture, and forest uses) c. Agriculture (farming, ranching, or grazing) d. Forested or natural areas	b
7. Consult the most recent State of Oregon DEQ 305(b) report, or LASAR, to determine whether any streams in the assessment area are listed as water quality limited. a. Yes b. No	a
8. Consult the most recent Oregon Statewide Assessment of Nonpoint Sources of Water Pollution to determine the water quality condition of stream reaches in the watershed upstream from the study area. a. All upstream reaches are listed as no problem b. One or more upstream stream reaches are listed in moderate water quality condition c. One or more upstream reaches are listed in severe water quality condition	b
9. Fisheries: Select all that are appropriate and list type if known a. Cold water b. Warm water c. Anadromous d. Wild populations e. Introduced or hatchery populations f. None g. Other	a. Regionally common cold water species b. Regionally common warm water species c/d. Wild population of Coho in the Neacoxie
10. Are known sensitive, threatened, or endangered fish species other a. Yes b. No c. Unknown	a. The study area is part of the Oregon Coast ESU for Coho and Steelhead
11. Wildlife species: Select all that are appropriate and list species if known. a. Migratory birds b. Big game c. Nesting birds	a. Birds that migrate along the Pacific Flyway b. Roosevelt Elk
12. Are known sensitive, threatened, or endangered plant species or wildlife species other then fish present in the watershed? If so, list which species. a. Yes b. No c. Unknown	a. Silverspot butterfly
13. Does the watershed provide a natural corridor for fish or wildlife movement? List whether for fish, wildlife, or both. Consider fences, dams, and other barriers to travel. a. There are contiguous natural areas that allow species movement, and if barriers exist, they do not stop animal or fish movement. b. The natural areas are fragmented, and there are barriers to species movement. c. The habitat system is fragmented, and there are barriers to species movement.	c. There are barriers to both fish and wildlife species within the study area
14. What are the landscape features at both ends of the movement corridor? a. Large natural habitat areas are at both ends. b. One end has a natural habitat area and the other end is developed. c. Both ends are developed.	a. To the north and east of the study area are large tracts of forestland. To the south is a large undeveloped estuarine wetland.

APPENDIX B. WETLANDS CHARACTERIZATION

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Wetland Characterization Questions	W1	W2	W3
15. What percentage of the area within 500ft of the wetland's edge is dedicated to the land uses listed below? (a. Less then 20%, b. Between 20%-50%, c. Greater then 50%) a. Open spaces (Natural areas, parks and developed recreation, not including Exclusively designated Forest Use land) b. Agriculture (Pasture, cropped lands, orchards, range land) c. Exclusive Forest Use Lands d. Developed uses (residential, commercial or industrial- rural and urban)	A A A C	A A A C	A A A C
16. What is the dominant existing land use within 500ft of the wetlands on the downstream or downslope edge of the wetland? a. Open spaces (Natural areas, parks and developed recreation, not including Exclusively designated Forest Use land) b. Agriculture (Pasture, cropped lands, orchards, range land) c. Exclusive Forest Use Lands d. Developed uses (residential, commercial or industrial- rural and urban)	A	A	D
17. What is the wetland's area in acres? a. Greater then 5 acres; b. Between 0.5 – 5 acres; c. Less then 0.5 acres	A	A	A
18. How is the wetland connected to another body of water? (i.e. stream, lake or pond) a. The wetland is connected by surface water to another body of water b. No surface water connection exists to another body of water, but the wetland lies within 1 mile of the waterbody c. No surface water connection exists to another body of water, and no other bodies of water lie within 1 mile of the waterbody	A	B	B
19. Is all or part of the wetland located within the 100-year floodplain, or within a closed basin? a. Yes b. No	A	A	A
20. What percentage of the area within 500ft of the wetland's edge is zoned for each of the land uses listed below? (a. Less then 20%, b. Between 20%-50%, c. Greater then 50%) a. Open spaces (Natural areas, parks and developed recreation, not including Exclusively designated Forest Use land) b. Agriculture (Pasture, cropped lands, orchards, range land) c. Exclusive Forest Use Lands d. Developed uses (residential, commercial or industrial- rural and urban)	A A A C	A A A C	A A A C
21. Percentage covered by following Cowardin classes: (A: 70-100%, B: 50-70%, C: 20-50%, D: 10-20%) 1.Open water 2.Emergent 3.Scrub-shrub 4.Forested	C D C C	D D B C	C D C C
22. Urban areas: # of wetland plant species: (1, 2-5, > 5)	>5	>5	> 5
23. What is the dominant wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation & ponding/ open water c. Emergent vegetation only or wet meadow	B	A	A
24. What is the degree of Cowardin class interspersion for the wetland being observed? a. High b. Moderate c. Low	A	B	B
25. For rural areas: what percentage of the wetland's edge is bordered by upland wildlife habitat that is at least 150ft wide? a. Greater then 40%; b. Between 10% - 40%; c. Less then 10%	N/A	N/A	N/A
26. Urban areas: percentage of wetland's edge bordered by a vegetative buffer at least 25ft wide? a. Greater than 40%; b. Between 10% - 40%; c. Less then 10%	B	B	A
27. How is the wetland connected to other wetlands? a. Connected within a 3-mile radius by perennial or intermittent stream b. Not connected by surface waters, but other unconnected wetlands within 3-mile radius c. Not connected to other wetlands by surface waters, and no other unconnected wetlands lie within 3-mile radius.	A	B	B

28. Estimate the area of unvegetated, open water within the wetland. a. More than 3 acres b. Greater than 1 acre, up to 3 acres c. Between 0.5 and 1 acre d. Less than 0.5 acres	A	C	C
29. Are fish present in a stream, lake or pond connected to the wetland? a. Salmon, trout or sensitive species are present at some time during the year b. Species nor covered in "a" are present at some time during the year c. No species are present at any time during the year	A	B	B
30. What is the physical character of the stream channel? a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel b. Only portions of the stream are modified c. The stream is extensively modified or confined in a non-vegetated channel	B	B	N/A
31. What Percentage of the stream is shaded by riparian vegetation? a. Greater than 75% b. Between 50% and 75% c. 25% or more, but less than 50% d. Less than 25%	B	B	N/A
32. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders? a. Greater than 25% b. Between 10% and 25% c. Less than 10%	C	B	N/A
33. Does the lake or pond contain area of deep (6.5ft) and shallow water? a. Yes b. Cannot be determined c. No	N/A	N/A	N/A
34. What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation? a. 60% or more b. 20% or more, but less then 60% c. Less then 20%	N/A	N/A	N/A
35. What percentage of the wetland complex contains cover objects such as submerged logs, floating or submerged vegetation, large rocks or boulders? a. Greater then 25% b. Between 10% - 25% c. Less then 10%	N/A	N/A	N/A
36. What is the wetland's primary source of water? a. Surface flow, including streams and ditches b. Precipitation or sheet flow c. Groundwater, including seeps and springs	A	A	B
37. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable C. No	A	A	A
38. Is water flow out of the wetland restricted? a. Yes, the outlet is restricted or the wetland has not outlet b. Minor restrictions slow down the water c. No, the outlet has unrestricted flow	B	B	B

Wetland Characterization Questions	W4	W5	W6
15. What percentage of the area within 500ft of the wetland's edge is dedicated to the land uses listed below? (a. Less then 20%, b. Between 20%-50%, c. Greater then 50%) a. Open spaces (Natural areas, parks and developed recreation, not including Exclusively designated Forest Use land) b. Agriculture (Pasture, cropped lands, orchards, range land) c. Exclusive Forest Use Lands d. Developed uses (residential, commercial or industrial- rural and urban)	A A A C	A A A C	A A A C
16. What is the dominant existing land use within 500ft of the wetlands on the downstream or downslope edge of the wetland? a. Open spaces (Natural areas, parks and developed recreation, not including Exclusively designated Forest Use land) b. Agriculture (Pasture, cropped lands, orchards, range land) c. Exclusive Forest Use Lands d. Developed uses (residential, commercial or industrial- rural and urban)	D	D	D
17. What is the wetland's area in acres? b. Greater then 5 acres; b. Between 0.5 – 5 acres; c. Less then 0.5 acres	A	A	A
18. How is the wetland connected to another body of water? (i.e. stream, lake or pond) a. The wetland is connected by surface water to another body of water b. No surface water connection exists to another body of water, but the wetland lies within 1 mile of the waterbody c. No surface water connection exists to another body of water, and no other bodies of water lie within 1 mile of the waterbody	B	B	B
19. Is the wetland located within the 100-year floodplain? b. Yes b. No	B	B	A
20. What percentage of the area within 500ft of the wetland's edge is zoned for each of the land uses listed below? (a. Less then 20%, b. Between 20%-50%, c. Greater then 50%) a. Open spaces (Natural areas, parks and developed recreation, not including Exclusively designated Forest Use land) b. Agriculture (Pasture, cropped lands, orchards, range land) c. Exclusive Forest Use Lands d. Developed uses (residential, commercial or industrial- rural and urban)	A A A C	A A A C	A A A C
21. Percentage covered by following Cowardin classes: (A: 70-100%, B: 50-70%, C: 20-50%, D: 10-20%) 1.Open water 2.Emergent 3.Scrub-shrub 4.Forested	C D C D	D D B C	D D C C
22. Urban areas: # of wetland plant species: (1, 2-5, > 5)	> 5	> 5	> 5
23. What is the dominant wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation & ponding/ open water c. Emergent vegetation only or wet meadow	A	A	A
24. What is the degree of Cowardin class interspersion for the wetland being observed? a. High b. Moderate c. Low	B	B	B
25. For rural areas: what percentage of the wetland's edge is bordered by upland wildlife habitat that is at least 150ft wide a. Greater then 40%; b. Between 10% - 40%; c. Less then 10%	N/A	N/A	N/A
26. Urban areas: percentage of wetland's edge bordered by a vegetative buffer at least 25ft wide? a. Greater than 40%; b. Between 10% - 40%; c. Less then 10%	C	B	B
27. How is the wetland connected to other wetlands? a. Connected within a 3-mile radius by perennial or intermittent stream b. Not connected by surface waters, but other unconnected wetlands within 3-mile radius c. Not connected to other wetlands by surface waters, and no other unconnected wetlands lie within 3-mile radius.	B	B	B

28. Estimate the area of unvegetated, open water within the wetland. a. More than 3 acres b. Greater than 1 acre, up to 3 acres c. Between 0.5 and 1 acre d. Less than 0.5 acres	D	D	C
29. Are fish present in a stream, lake or pond connected to the wetland? a. Salmon, trout or sensitive species are present at some time during the year b. Species nor covered in "a" are present at some time during the year c. No species are present at any time during the year	C	B	B
30. What is the physical character of the stream channel? a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel b. Only portions of the stream are modified c. The stream is extensively modified or confined in a non-vegetated channel	N/A	N/A	C
31. What Percentage of the stream is shaded by riparian vegetation? a. Greater than 75% b. Between 50% and 75% c. 25% or more, but less than 50% d. Less than 25%	N/A	N/A	C
32. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders? a. Greater than 25% b. Between 10% and 25% c. Less than 10%	N/A	N/A	B
33. Does the lake or pond contain area of deep (6.5ft) and shallow water? a. Yes b. Cannot be determined c. No	N/A	N/A	B
34. What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation? a. 60% or more b. 20% or more, but less then 60% c. Less then 20%	N/A	N/A	C
35. What percentage of the wetland complex contains cover objects such as submerged logs, floating or submerged vegetation, large rocks or boulders? a. Greater then 25% b. Between 10% - 25% c. Less then 10%	N/A	N/A	C
36. What is the wetland's primary source of water? a. Surface flow, including streams and ditches b. Precipitation or sheet flow c. Groundwater, including seeps and springs	B	A	C
37. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	B	B	A
38. Is water flow out of the wetland restricted? a. Yes, the outlet is restricted or the wetland has not outlet b. Minor restrictions slow down the water c. No, the outlet has unrestricted flow	A	A	A

Wetland Characterization Questions	W7	W8
15. What percentage of the area within 500ft of the wetland's edge is dedicated to the land uses listed below? (a. Less then 20%, b. Between 20%-50%, c. Greater then 50%) a. Open spaces (Natural areas, parks and developed recreation, not including Exclusively designated Forest Use land) b. Agriculture (Pasture, cropped lands, orchards, range land) c. Exclusive Forest Use Lands d. Developed uses (residential, commercial or industrial- rural and urban)	A A A C	A A C A
16. What is the dominant existing land use within 500ft of the wetlands on the downstream or downslope edge of the wetland? a. Open spaces (Natural areas, parks and developed recreation, not including Exclusively designated Forest Use land) b. Agriculture (Pasture, cropped lands, orchards, range land) c. Exclusive Forest Use Lands d. Developed uses (residential, commercial or industrial- rural and urban)	D	C
17. What is the wetland's area in acres? c. Greater then 5 acres; b. Between 0.5 – 5 acres; c. Less then 0.5 acres	A	A
18. How is the wetland connected to another body of water? (i.e. stream, lake or pond) a. The wetland is connected by surface water to another body of water b. No surface water connection exists to another body of water, but the wetland lies within 1 mile of the waterbody c. No surface water connection exists to another body of water, and no other bodies of water lie within 1 mile of the waterbody	B	A
19. Is the wetland located within the 100-year floodplain? c. Yes b. No	B	A
20. What percentage of the area within 500ft of the wetland's edge is zoned for each of the land uses listed below? (a. Less then 20%, b. Between 20%-50%, c. Greater then 50%) a. Open spaces (Natural areas, parks and developed recreation, not including Exclusively designated Forest Use land) b. Agriculture (Pasture, cropped lands, orchards, range land) c. Exclusive Forest Use Lands d. Developed uses (residential, commercial or industrial- rural and urban)	A A A C	B A B A
21. Percentage covered by following Cowardin classes: (A: 70-100%, B: 50-70%, C: 20-50%, D: 10-20%) 1.Open water 2.Emergent 3.Scrub-shrub 4.Forested	10-20% 70-100% 10-20% 10-20%	10-20% 20-50% 50-70% 20-50%
22. Urban areas: # of wetland plant species: (1, 2-5, > 5)	2 – 5	> 5
23. What is the dominant wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation & ponding/ open water c. Emergent vegetation only or wet meadow	B	A
24. What is the degree of Cowardin class interspersion for the wetland being observed? a. High b. Moderate c. Low	C	A
25. For rural areas: what percentage of the wetland's edge is bordered by upland wildlife habitat that is at least 150ft wide a. Greater then 40%; b. Between 10% - 40%; c. Less then 10%	N/A	N/A
26. Urban areas: percentage of wetland's edge bordered by a vegetative buffer at least 25ft wide? a. Greater than 40%; b. Between 10% - 40%; c. Less then 10%	C	B
27. How is the wetland connected to other wetlands? a. Connected within a 3-mile radius by perennial or intermittent stream b. Not connected by surface waters, but other unconnected wetlands within 3-mile radius c. Not connected to other wetlands by surface waters, and no other unconnected wetlands lie within 3-mile radius.	B	A

28. Estimate the area of unvegetated, open water within the wetland. a. More than 3 acres b. Greater than 1 acre, up to 3 acres c. Between 0.5 and 1 acre d. Less than 0.5 acres	B	A
29. Are fish present in a stream, lake or pond connected to the wetland? a. Salmon, trout or sensitive species are present at some time during the year b. Species nor covered in "a" are present at some time during the year c. c. No species are present at any time during the year	C	A
30. What is the physical character of the stream channel? a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel b. Only portions of the stream are modified c. The stream is extensively modified or confined in a non-vegetated channel	N/A	A
31. What Percentage of the stream is shaded by riparian vegetation? a. Greater than 75% b. Between 50% and 75% c. 25% or more, but less than 50% d. Less than 25%	N/A	B
32. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders? a. Greater than 25% b. Between 10% and 25% c. Less than 10%	N/A	B
33. Does the lake or pond contain area of deep (6.5ft) and shallow water? a. Yes b. Cannot be determined c. No	N/A	N/A
34. What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation? a. 60% or more b. 20% or more, but less then 60% c. c. Less then 20%	N/A	N/A
35. What percentage of the wetland complex contains cover objects such as submerged logs, floating or submerged vegetation, large rocks or boulders? a. Greater then 25% b. Between 10% - 25% c. c. Less then 10%	N/A	N/A
36. What is the wetland's primary source of water? a. Surface flow, including streams and ditches b. Precipitation or sheet flow c. Groundwater, including seeps and springs	B	A
37. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	C	A
38. Is water flow out of the wetland restricted? a. Yes, the outlet is restricted or the wetland has not outlet b. Minor restrictions slow down the water c. No, the outlet has unrestricted flow	A	B

APPENDIX C. WETLANDS DETERMINATION AND SUMMARY

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WETLAND SUMMARY SHEET

Project Name: City of Gearhart, Local Wetlands Inventory

Date of Field Verification	10/13/2004, 11/8/2004, 12/2/2004
Investigators	AW, NM, TD, TL, CM
Determination	Wetland
Wetland Classification(s)	**Cowardin:** PABH, PFO, PSS, PEM

Wetland Code	W1
Sample Plot Codes	W1a, W1b, W1c, W1d, W1e, W1f, W1g, W1h, W1i, W1j
Size (acres)	27.94
Locally Significant?	Yes
HGM: Riverine impounding, Riverine flow through	

LOCATION

Township: 6N, 7N	**Range:** 10W	**Section:** 3, 34
Descriptive Location (address): Northwest Gearhart, wetlands follow Neacoxie Creek corridor		

Tax Lots
02400 02300 02200 02100 02007 02006 02004 02000 00809 00100 01200 00100 09400 09200 08901 08003 08000 06800 06700 05500 05300 05200 05001 05000 04900 04800 04700 03700 03600 03501 03500 03403 03400 02900 01900 01805 01801 01800 01700 01400

HYDROLOGY

Hydrologic Basin	Neacoxie Watershed
Hydrologic Source	Creek flow, precipitation
Estuarine/Freshwater	Freshwater

SOILS

Soil Types	72A Warrenton fine sandy loam
Hydric?	Yes

DOMINANT WETLAND VEGETATION

TREES	SHRUBS	HERBS
Sitka spruce (Picea sitchensis)	Red Huckleberry (Vaccinium parvifolium)	Pacific water parsley (Oenanthe sarmentosa)
Crabapple (Malus fuscus)	Black twinberry (Lonicera involucrata)	Creeping buttercup (Ranunculus repens)
Red alder (Alnus rubra)	Holly (Ilex aquifolium)	Skunk cabbage (Lysichitum americanum)
	Trailing blackberry (Rubus ursinus)	Slough sedge (Carex obnupta)
	Douglas spirea/Hardhack (Spirea douglasii)	Deer Fern (Blechnum spicant)
	Salmonberry (Rubus spectabilis)	Common rush (Juncus effusus)
	Salal (Gaultheria shallon)	Bracken Fern (Pteridium aquilinum)
	Red Elderberry (Sambucus racemosa)	Lilly of the Valley (Maianthemum dilatatum)
	Hookers Willow (Salix hookeriana)	Cleavers Bedstraw (Galium trifidium)
		Narrow leaved cattail (Typha latifolia)
		Clover (Trifolium dubium)
		Marsh pennywort (Hydrocotyle ranunculoides)

COMMENTS (describe wetland, land uses, alterations, basis of wetland boundary determination, etc.)

Drainage patterns are highly modified by undersized culverts and other channel neckpoints. The wetlands are a mosaic in some areas of wetlands and non-wetlands, with slight rises and depressions in elevation, bordered by patches of remnant coastal prairies. Long patches of established crabapple *(malus fuscus)* stands border wetlands upper edge providing high level of habitat function. North Coast Lands conservancy owns tracts along these wetlands to protect them from encroaching development activities from the west.

OFWAM RESULTS

Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Locally Significant?
Provides diverse wildlife habitat	Fish Habitat function is impacted or degraded	Water quality function is impacted or degraded	Hydrologic control is intact	Yes

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W1a **Investigator:** AW, AS	**Date:** 5-20-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.034081223 **Longitude: -123.917354873** **Township: 6N** **Range: 10W** **Section: 10**

Do Normal Circumstances Exist? ***Yes*** No **Is the site significantly disturbed?** Yes ***No*** **Is the area a potential Problem Area?** Yes ***No***	**Wetland Classification** **Cowardin:** PSS **HGM:** RFT

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Alnus rubra	Tree	FAC	7.		
2. *Rubus spectabilis	Shrub	FAC+	8.		
3. Sambucus racemosa	Shrub	FACU	9.		
4. *Maianthemum dilatatum	Herbaceous	FAC	10		
5. Blechnum spicant	Herbaceous	FAC+	11.		
6.			12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 100%

Remarks:

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: 12 inches

Depth to Saturated Soil: 10 inches

Recorded data
____ Stream, lake, or tide gauge
____ Aerial photography
____ Other **____ No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
X Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 70C Waldport fine sandy loam 3% to 15% slopes **On Hydric Soils List:** No

Classification: Isomesic Typic Tropopsamments **Drainage Class:** Very deep excessively drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-4	O	7.5YR 3/3	Sandy Loam		
4-13	A	10YR 3/1	Sandy Loam		
13-20	AB	7.5YR 3/1	Sandy Clay Loam		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
_X_Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION **Is the Sampling Point Within a Wetland?** ***Yes*** No

Hydrophytic Vegetation Present? ***Yes*** No
Wetland Hydrology Present? ***Yes*** No
Hydric Soils Present? ***Yes*** No

Remarks:

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W1b **Investigator:** AW, AS	**Date:** 5-20-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0340545017 **Longitude: -123.917436523** **Township:** 6N **Range:** 10W **Section:** 03

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** Upland **HGM:** Upland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Salix hookeriana	Tree	FACW-	7.		
2. Rubus spectabilis	Shrub	FAC+	8.		
3. *Rubus ursinus	Shrub	FACU	9.		
4. Sambucus racemosa	Shrub	FACU	10		
5.* Maianthemum dilatatum	Herbaceous	FAC	11.		
6. Galium trifidium	Herbaceous	FACW+	12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 66%

Remarks: Most dominant species are FAC, being as likely in an upland as in a wetland

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: non

Depth of Free Water in Pit: none

Depth to Saturated Soil: none

Recorded data
____ Stream, lake, or tide gauge
____Aerial photography
____Other **____ No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
___Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 70C Waldport fine sandy loam

On Hydric Soils List: No

Classification: Isomesic Typic Tropopsamments

Drainage Class: Very deep excessively drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-20		10YR 4/3	LSD		
0-20		10YR 4/4	LSD		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
____Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? Yes *No*

Hydrophytic Vegetation Present? *Yes* No
Wetland Hydrology Present? Yes *No*
Hydric Soils Present? Yes *No*

Remarks:

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** WIc **Investigator:** AW, AS	**Date:** 5-12-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0321099996 **Longitude: -123.916900000** **Township: 6N** **Range: 10W** **Section: 03**

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** PSS **HGM:** RFT

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Alnus Rubra	Tree	FAC	7.		
2.*Picea sitchensis	Tree	FAC	8.		
3.*Rubus spectabilis	Shrub	FAC+	9.		
4. *Lysichiton americanum	Herbaceous	OBL	10		
5. *Carex obnupta	Herbaceous	OBL	11.		
6.			12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 100%

Remarks:

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: 11 inches

Depth to Saturated Soil: 1 inch

Recorded data
____ Stream, lake, or tide gauge
____ Aerial photography
____ Other **____ No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
_X_Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 70C Waldport fine sandy loam 3% to 15% slopes **On Hydric Soils List:** No

Classification: Isomesic Typic Tropopsamments **Drainage Class:** Very deep excessively drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-3	OA	10YR 3/2	Loam		
3-8	A	10YR 3/1	Sandy Loam		
9-20	B	10YR 3/1	Loam		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
_X_Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION **Is the Sampling Point Within a Wetland?** ***Yes*** No

Hydrophytic Vegetation Present? ***Yes*** No
Wetland Hydrology Present? ***Yes*** No
Hydric Soils Present? ***Yes*** No

Remarks:

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W1d **Investigator:** AW, AS	**Date:** 5-12-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0314900003 **Longitude: -123.917230000** **Township:** 6N **Range:** 10W **Section:** 03

Do Normal Circumstances Exist? ***Yes*** No **Is the site significantly disturbed?** Yes ***No*** **Is the area a potential Problem Area?** Yes ***No***	**Wetland Classification** **Cowardin:** Upland **HGM:** Upland

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. *Picea sitchensis	Tree	FAC
2. *Alnus rubra	Tree	FAC
3. *Sambucus racemosa	Shrub	FACU
4. *Rubus spectabilis	Shrub	FAC+
5. *Maianthemum dilatatum	Herbaceous	FAC
6. Carex obnupta	Herbaceous	OBL

Dominant Plant Species	Stratum	Indicator
7. Polysticum munitum	Herbaceous	FACU
8.		
9.		
10		
11.		
12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 80%

Remarks:

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: none

Depth to Saturated Soil: none

Recorded data
____ Stream, lake, or tide gauge
____ Aerial photography
____ Other **____ No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
___Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 70C Waldport fine sandy loam

On Hydric Soils List: No

Classification: Isomesic Typic Tropopsamments

Drainage Class: Very deep excessively drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-4	OA		Sandy Loam		
4-9	A	10YR 3/1	Sandy Loam		
9-20	B	2.5YR 5/4	Sandy Loam		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
_X_ Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? Yes *No*

Hydrophytic Vegetation Present? *Yes* No
Wetland Hydrology Present? Yes *No*
Hydric Soils Present? *Yes* No

Remarks:

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** WIe **Investigator:** AW, AS	**Date:** 5-20-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0313700000 **Longitude: -123.916990000** **Township**: 6N **Range**: 10W **Section**: 03

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** PSS **HGM:** DCNP

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Picea sitchensis	Tree	FAC	7.		
2. *Rubus ursinus	Shrub	FACU	8.		
3. *Lonicera involucrata	Shrub	FAC+	9.		
4. *Carex obnupta	Herbaceous	OBL	10		
5.			11.		
6.			12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 75%

Remarks:

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: 13 inches

Depth to Saturated Soil: 5 inches

Recorded data
____ **Stream, lake, or tide gauge**
____**Aerial photography**
____**Other** ____ **No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
_X_Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 70C Waldport fine sandy loam

On Hydric Soils List: No

Classification: Isomesic Typic Tropopsamments

Drainage Class: Very deep excessively drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-4	O				
4-14	A	10YR 3/1	SL		
14+	B	10YR 4/1	SDL		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
_X_Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? ***Yes*** No

Hydrophytic Vegetation Present? ***Yes*** No
Wetland Hydrology Present? ***Yes*** No
Hydric Soils Present? ***Yes*** No

Remarks:

Heavy rain yesterday

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W1f **Investigator:** AW, AS	**Date:** 5-20-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0314700002 **Longitude: -123.917170000** **Township**: 6N **Range:** 10W **Section**: 03

Do Normal Circumstances Exist? ***Yes*** No **Is the site significantly disturbed?** Yes ***No*** **Is the area a potential Problem Area?** Yes ***No***	**Wetland Classification** **Cowardin:** PSS **HGM:** DCNP

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Picea sitchensis	Tree	FAC	7.		
2. *Alnus rubra	Tree	FAC	8.		
3. *Vaccinium parvifolium	Shrub	NOL	9.		
4. *Carex obnupta	Herbaceous	OBL	10		
5. *Maianthemum dilatatum	Herbaceous	FAC	11.		
6. *Blechnum spicant	Herbaceous	FAC+	12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 83%

Remarks: Vaccinium parvifolium is often rooted above the water table on stumps or rotting wood.

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: 13 inches

Depth to Saturated Soil: 5 inches

Recorded data
____ **Stream, lake, or tide gauge**
____**Aerial photography**
____**Other** ____ **No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
__Inundated
X__Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 70C Waldport fine sandy loam **On Hydric Soils List:** No

Classification: Isomesic Typic Tropopsamments **Drainage Class:** Very deep excessively drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-1	O				
1-6	A	10YR 2/2	LSD		
6-20	B	10YR 4/2	LSD	7.5YR 4/4	40%

Hydric Soils Indicators

____Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
_X_Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION **Is the Sampling Point Within a Wetland?** ***Yes*** No

Hydrophytic Vegetation Present? ***Yes*** No
Wetland Hydrology Present? ***Yes*** No
Hydric Soils Present? ***Yes*** No

Remarks:

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W1g **Investigator:** AW, AS	**Date:** 5-20-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0318951206 **Longitude: -123.917345526** **Township**: 6N **Range:** 10W **Section**: 03

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** Upland **HGM:** Upland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Thuja plicata	Tree	FAC	7.* Maianthemum dilatatum	Herbaceous	FAC
2. Alnus rubra	Tree	FAC	8.		
3. Ilex aquifolium	Tree	NOL	9.		
4. *Picea sitchensis	Tree	FAC	10		
5. *Gaultheria shallon	Shrub	FACU	11.		
6. *Vaccinium parvifolium	Shrub	NOL	12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 66%

Remarks:
Vegetation meets wetland indicator, however the dominant plants are unreliable indicators in that they are mostly FAC, which means they are as likely to be found in a wetland as in an upland. Soils don't meet low chroma indicators as they mottles are high chroma.

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: none

Depth to Saturated Soil: none

Recorded data
____ Stream, lake, or tide gauge
____Aerial photography
____Other **____ No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
___Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 70C Waldport fine sandy loam

On Hydric Soils List: No

Classification: Isomesic Typic Tropopsamments

Drainage Class: Very deep excessively drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-5	O				
5-9	A	10YR 3/1	L		
9+	B	10YR 4/2	LSD	7.5YR 4/4	(40%)

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
__X__Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? Yes *No*

Hydrophytic Vegetation Present? *Yes* No
Wetland Hydrology Present? Yes *No*
Hydric Soils Present? *Yes* No

Remarks:

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W1h **Investigator:** AW. NM	**Date:** 11-8-2004 **County:** Clatsop **State:** Oregon

Latitude: 46.0432399997 **Longitude: -123.918490000** **Township**: 7N **Range:** 10W **Section**: 34

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** PABH **HGM:** RI

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. *Picea sitchensis	Tree	FAC
2. *Malus fusca	Tree	FACW
3. *Juncus effusus	Herbaceous	FACW
4. *Oenanthe sarmentosa	Herbaceous	OBL
5. *Ranuculus repens	Herbaceous	FACW
6. *Lysichitum americanum	Herbaceous	OBL

Dominant Plant Species	Stratum	Indicator
7. *Carex obnupta	Herbaceous	OBL
8.		
9.		
10		
11.		
12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 100%

Remarks:

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: 9 inches

Depth to Saturated Soil: 0 inches

Recorded data
____ Stream, lake, or tide gauge
____Aerial photography
____Other **____ No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
_X_Saturated in Upper 12 inches
_X_ Water Marks
___Drift Lines
___Sediment Deposits
_X_Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: Warrenton **On Hydric Soils List:** Yes

Classification: Isomesic typic tropaquepts **Drainage Class:** Very poorly drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-5"	OA	10yr2/1	Sandy Clay Loam		
5"-12"	A	10yr2/1	Sandy Clay Loam		
12" +	B	10yr4/1	Sandy Clay Loam		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
_X_Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION **Is the Sampling Point Within a Wetland?** ***Yes*** No

Hydrophytic Vegetation Present? ***Yes*** No
Wetland Hydrology Present? ***Yes*** No
Hydric Soils Present? ***Yes*** No

Remarks:

Complex wetland/upland conditions along Neacoxie Creek corridor. Upland distinction is made by the presence of multiple non-native grasses such as fescue, velvet grass, and ryegrass.

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W1i **Investigator:** AW, NM	**Date:** 11-8-2004 **County:** Clatsop **State:** Oregon

Latitude: 46.0427499996 **Longitude: -123.918329999** **Township**: 7N **Range:** 10W **Section**: 34

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** PABH **HGM:** RI

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Picea sitchensis	Tree	FAC	7. *Carex obnupta	Herbaceous	OBL
2. *Malus fusca	Tree	FACW	8.		
3. *Lonicera involucrata	Shrub	FAC+	9.		
4. *Rubus ursinus	Shrub	FACU	10		
5. Ilex aquifolium	Shrub	NOL	11.		
6. Pteridium- aquilinum	Shrub	FACU	12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 80%

Remarks:

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: none

Depth to Saturated Soil: none

Recorded data
____ Stream, lake, or tide gauge
____Aerial photography
____Other **____ No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
___Saturated in Upper 12 inches
X Water Marks
___Drift Lines
___Sediment Deposits
X Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
X Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 72A Warrenton Fine Sandy Loam **On Hydric Soils List:** Yes

Classification: Isomesic typic tropaquepts **Drainage Class:** Very poorly drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-6"	Oa	10YR 2/1	Clay Loam		
6"-14"	A	10YR 3/1	Sandy Loam		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
_X_Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
X___Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION **Is the Sampling Point Within a Wetland?** ***Yes*** No

Hydrophytic Vegetation Present? ***Yes*** No
Wetland Hydrology Present? ***Yes*** No
Hydric Soils Present? ***Yes*** No

Remarks:

-Blue heron spotted
-Plot taken at transition area at approximate wetland/upland line
-Upland plants (blackberry, fern, pasture grasses) becoming more dominant as topography begins to change toward toe of dune slope.

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W1j **Investigator:** AW, TD, TL	**Date:** 12-2-2004 **County:** Clatsop **State:** Oregon

Latitude: 46.0402578545 **Longitude: -123.917615315** **Township:** 7N **Range:** 10W **Section:** 34

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** PABH **HGM:** RI

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Picea sitchensis	Tree	FAC	7.		
2. *Spiraea douglasii	Shrub	FACW	8.		
3. Juncus Effusus	Herbaceous	FACW	9.		
4. *Typha Latifolia	Herbaceous	OBL	10		
5. Trifolium dubium	Herbaceous	FAC	11.		
6. Hydrocotyle ranunculoides	Herbaceous	OBL	12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 100%

Remarks:

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: 1 inches

Depth to Saturated Soil: 0 inch

Recorded data
____ **Stream, lake, or tide gauge**
____**Aerial photography**
____**Other** ____ **No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
X Saturated in Upper 12 inches
X Water Marks
X Drift Lines
___Sediment Deposits
X Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 72A Warrenton Fine Sandy Loam

On Hydric Soils List: yes

Classification: Isomesic typic tropaquepts

Drainage Class: Very poorly drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-5"	O	10yr2/2	Silty Loam		
5-30"	A	10yr2/1	Loam		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
_X_Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
_X_Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? *Yes* No

Hydrophytic Vegetation Present? *Yes* No
Wetland Hydrology Present? *Yes* No
Hydric Soils Present? *Yes* No

Remarks:

-Cattail dominated wetland lobe adjacent to Neacoxie creek corridor,
-Deep saturated organic layer.
-Upland characterized by creeping blackberry and exotic pasture grasses.

WETLAND SUMMARY SHEET

Project Name: City of Gearhart, Local Wetlands Inventory

Date of Field Verification	4/21/2009
Investigators	AW, AS; Terra Science Inc.
Determination	Wetland
Wetland Classification(s)	**Cowardin:** PFO, PSS, PEM

Wetland Code	W2
Sample Plot Codes	W2a, W2b, W2c
Size (acres)	17.84
Locally Significant?	Yes
HGM: DCNP, RI, RFT	

LOCATION

Township: 6N	**Range:** 10W	**Section:** 10

Descriptive Location (address): Wetlands begin at the head of tide, G Street in Gearhart and continue north to Pacific Way.

Tax Lots
03600 03500 03401 03400 03301 03300 02600 02502 02501 02400 02300 02106 02104 02102 02101 01101 01100 01000 00901 00800 00702 00700 00600 00301 00200 00100 08901 01501 01500 01401 01400 01300 01200 00800 00500 00400

HYDROLOGY

Hydrologic Basin	Neacoxie Watershed
Hydrologic Source	Overland flow, precipitation, groundwater
Estuarine/Freshwater	Freshwater

SOILS

Soil Types	Gearhart fine sandy loam Warrenton fine sandy loam
Hydric?	No Yes

DOMINANT WETLAND VEGETATION

TREES	SHRUBS	HERBS
Sitka spruce (Picea sitchensis)	Huckleberry (Vaccinium parvifolium)	Slough sedge (Carex obnupta)
Hemlock (Tsuga heterophylla)	Salmonberry (Rubus spectabilis)	False solomon's seal (Smilacina racemosa)
Hookers willow (Salix hookeriana)	Salal (Gaultheria shallon)	English ivy (Helix hedera)
	Douglas spirea/Hardhack (Spirea douglasii)	Common rush (Juncus effusus)
	Trailing blackberry (Rubus ursinus)	Juncus tenuis
		Baltic rush (Juncus balticus)
		Velvet grass (Holcus lanatus)
		Bentgrass sp. (Agrostis sp.)

COMMENTS (describe wetland, land uses, alterations, basis of wetland boundary determination, etc.)

Wetlands are nested within a disconnected longer swale corridor paralleling higher elevation dune ridges extending north and slough. Several small wetlands were created for mitigation, and a drainage wetland connected to these that runs between the Gearhart Bowling Alley and the Gearhart Elementary School. Terra Science Inc. delineated these wetlands in 2000. HWY 101 borders the wetlands to the east, and 5th Street to the north. The site was previously a drive in theatre. Source hydrology for these wetlands is ground water, direct precipitation, and runoff. Drainage patterns are constrained by undersized culverts and urban development. Wetland extent is often within residential property lines with featured by pronounced hummock patterns and mosaic of slough sedge/sitka spruce cover types. There is some ponded open water that transition into emergent vegetation and then scrub shrub wetlands.

OFWAM RESULTS

Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Locally Significant?
Provides some wildlife habitat	Fish Habitat function is impacted or degraded	Water quality function is impacted or degraded	Hydrologic control is intact	Yes

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W2a **Investigator:** AW, TD	**Date:** 12-2-2004 **County:** Clatsop **State:** Oregon

Latitude: 46.0177999998 **Longitude: -123.914170001** **Township:** 6N **Range:** 10W **Section:** 10

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** PSSC **HGM:** Riverine Flow Through

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Salix hookeriana	Shrub	FACW-	7. *Ranuculus Repens	Herbaceous	FACW
2. *Spirea douglasii	Shrub	FACW	8.		
3. *Oemleria cerasiformis	Shrub	FACU	9.		
4. *Oenanthe sarmentosa	Shrub	OBL	10		
5. *Carex Obnupta	Herbaceous	OBL	11.		
6. *Vicia sativa	Herbaceous	UPL	12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 71%

Remarks:

**Indicated dominant plant species*

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: 12 inches

Depth to Saturated Soil: 8 inches

Recorded data
____ **Stream, lake, or tide gauge**
_X_ **Aerial photography**
____ **Other** ____ **No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
_X_Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: Coquille-Clatsop Complex

On Hydric Soils List: Yes

Classification: Isomesic aeric tropic fluvaquent

Drainage Class: Very Poorly Drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-5"	Oa	10yr2/2	Clay Loam		
5-12"	A	10yr2/1	Clay Loam		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
_X_Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? ***Yes*** No

Hydrophytic Vegetation Present? ***Yes*** No
Wetland Hydrology Present? ***Yes*** No
Hydric Soils Present? ***Yes*** No

Remarks:

Sons of Norway site; Upland edge: Hemlock, alders, sword fern, and blackberry understory

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W2b **Investigator:** AW, TD	**Date:** 12-2-2004 **County:** Clatsop **State:** Oregon

Latitude: 46.0198100000 **Longitude: -123.913830000** **Township:** 6N **Range:** 10W **Section:** 10

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** PFOC **HGM:** Riverine Flow Through

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Salix spp	Tree	FAC	7. Hedera helix	Herbaceous	NOL
2. Picea sitchensis	Tree	FAC	8.		
3. Alnus rubra	Tree	FAC	9.		
4. *Rubus spectabilis	Shrub	FAC	10		
5. *Cornus stolonifera	Shrub	FACW	11.		
6. *Carex Obnupta	Herbaceous	OBL	12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 100%

Remarks:

*Indicated dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: 12 inches

Depth to Saturated Soil: 5 inches

Recorded data
____ **Stream, lake, or tide gauge**
__X__ **Aerial photography**
____ **Other** ____ **No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
__X__Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: Coquille-Clatsop Complex

On Hydric Soils List: Yes

Classification: Isomesic aeric tropic fluvaquent

Drainage Class: Very Poorly Drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-5"	Oa	10yr2/2	C L		
5-12"	A	7.5yr3/1	C L	7/5yr 3/3	20% faint

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
_X_Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
_X_Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? ***Yes*** No

Hydrophytic Vegetation Present? ***Yes*** No
Wetland Hydrology Present? ***Yes*** No
Hydric Soils Present? ***Yes*** No

Remarks:

North of road, dense shrub community. Upland species populating vegetated dune slope include: sword fern, salmonberry, salal, and scotch broom

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W2c **Investigator:** AW, AS	**Date:** 4-21-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0207800004 **Longitude: -123.913440000** **Township:** 6N **Range:** 10W **Section:** 10

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** PFO **HGM:** DCNP

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Picea sitchensis	Tree	FAC	7. Rubus ursinus	Shrub	FACU
2. *Tsuga heterophylla	Tree	FACU	8. *Carex obnupta	Herbaceous	OBL
3. Vaccinium parvifolium	Shrub	NOL	9. Smilacina racemosa	Herbaceous	FAC
4. Rubus spectabilis	Shrub	FAC+	10. Helix hedera	Herbaceous	FACNOL
5. *Gultheria shallon	Shrub	FACU	11. *Spirea douglasii	Herbaceous	FACW
6. Ilex aquifolium	Shrub	NOL	12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 60%

Remarks:

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: 0 inches

Depth of Free Water in Pit: at surface

Depth to Saturated Soil: at surface

Recorded data

____ **Stream, lake, or tide gauge**
____ **Aerial photography**
____ **Other** ____ **No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:

X Inundated
X Saturated in Upper 12 inches
X Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)

___ Oxidized Root Channels in Upper 12 inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 72AWarrenton fine sandy loam

On Hydric Soils List: Yes

Classification: Isomesic Typic Tropaquepts

Drainage Class: Very poorly drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-8"	A	10YR 2/1	SL		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
_X_Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
_X_ Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? ***Yes*** No

Hydrophytic Vegetation Present? ***Yes*** No
Wetland Hydrology Present? ***Yes*** No
Hydric Soils Present? ***Yes*** No

Remarks:

WETLAND SUMMARY SHEET

Project Name: City of Gearhart, Local Wetlands Inventory

Date of Field Verification	12/11/2004	**Wetland Code**	W3
		Sample Plot Codes	
Investigators	AW	**Size (acres)**	20.16
Determination	Wetland	**Locally Significant?**	Yes
Wetland Classification(s)	**Cowardin:** PFOC, PSSC, PABH	**HGM:** DCNP	

LOCATION

Township: 6N	**Range:** 10W	**Section:** 3	**Tax Lots** 02307 02306 00800 00500 00400 00300 00200 00100
Descriptive Location (address):			

HYDROLOGY

Hydrologic Basin	Necanicum watershed
Hydrologic Source	Groundwater, precipitation
Estuarine/Freshwater	Freshwater

SOILS

Soil Types	Warrenton
Hydric?	Yes

DOMINANT WETLAND VEGETATION

TREES	SHRUBS	HERBS
Hookers willow (Salix hookeriana)	Douglas spirea (Spirea douglasii)	Slough sedge (Carex obnupta)
	Salmonberry (Rubus discolor)	Common rush (Juncus effusus)
		Juncus tenuis
		Juncus faltacus
		Velvet grass (Holcus lanatus)
		Agrostis sp.

COMMENTS (describe wetland, land uses, alterations, basis of wetland boundary determination, etc.)

Site represents a forested north-south swale patch along the Highway 101. While it is positioned in the middle of the City of Gearhart, there is relatively less real estate development around the wetland border than other wetland areas. North and south side of wetland are bordered by access roads with undersized culverts limiting hydrology connectivity on both sides. Western boundary of the wetland is shaped in part by access road to residential development where new development is occurring. Wetland area also expresses larger, unvegetated areas of open water, which is assumed to be in response to undersized culverts contributing to additional ponding.

OFWAM RESULTS

Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Locally Significant?
Provides some wildlife habitat	NA	Water quality function is impacted or degraded	Hydrologic control is intact	Yes

WETLAND SUMMARY SHEET

Project Name: City of Gearhart, Local Wetlands Inventory

Date of Field Verification	5/12/2009, 5/20/2009
Investigators	AW, AS
Determination	Wetland
Wetland Classification(s)	Cowardin: PSS, PEM

Wetland Code	W4
Sample Plot Codes	W4a, W4b, W4c
Size (acres)	13.39
Locally Significant?	Yes
HGM: Riverine Impounding, Riverine flow through	

LOCATION

Township: 7N	**Range:** 10W	**Section:** 34	**Tax Lots** 01800 01610 01609 01606 01605 01604 01603 01601 01500 01200 01100 01000 00900 00800 00700 00600 00500 00400 00300 00100
Descriptive Location (address): Wetlands are bordered by Gearhart Lane to the south, and continue to the northern edge of the UGB. They are bordered on the west and east sides by development.			

HYDROLOGY

Hydrologic Basin	Necanicum
Hydrologic Source	Creek flow, precipitation, surface flow
Estuarine/Freshwater	Freshwater

SOILS

Soil Types	Waldport fine sand, Gearhart fine sandy loam
Hydric?	Yes Yes

DOMINANT WETLAND VEGETATION

TREES	SHRUBS	HERBS
Dogwood (Cornus sericea)	Nootka rose (Rosa nutkana)	Common rush (Juncus effusus)
Sitka spruce (Picea sitchensis)	Trailing blackberry (Rubus ursinus)	Velvet grass (Holcus lanatus)
	Douglas spirea (Spirea douglasii)	Small bedstraw (Galium trifidium)
	Black twinberry (Lonicera involucrata)	Red clover (Trifolium pretense)
	Salmonberry (Rubus spectabilis)	Yellow flag iris (Iris psuedocorus)
		Pacific water parsley (Oenanthe sarmentosa)
		Creeping buttercup (Ranunculus repens)
		Slough sedge (Carex obnupta)
		False lily of the valley (Maianthemum dilatatum)
		Skunk cabbage (Lysichitum americanum)

COMMENTS (describe wetland, land uses, alterations, basis of wetland boundary determination, etc.)
W4 consists of wetlands associated with a hydrologically fragmented swale that runs north to south, parallel to HWY 101, with Gearhart Lane to the south and continuing to the northern border of the UGB. Hydrology is constrained in several spots due to fill associated with development and undersized culvert on wetland southern lobe creating stagnant open water areas. Wetland boundary is determined by upper fringe of slough channel where soil type transitions to better-drained conditions from remnant higher elevation sandy dune landforms. These upland conditions are also expressed through the change in dominant vegetation to Scots broom and Himalayan blackberry.

OFWAM RESULTS

Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Locally Significant?
Provides diverse wildlife habitat	NA	Water quality function is impacted or degraded	Hydrologic control is intact	Yes

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W4a **Investigator:** AW, CM	**Date:** 10-13-2004 **County:** Clatsop **State:** Oregon

Latitude: 46.0428623297 **Longitude: -123.914895295** **Township:** 7N **Range:** 10W **Section:** 34

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** PFOC **HGM:** RI

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Alnus rubra	Tree	FAC	7.		
2. *Rhamnus purshiana	Tree	FAC-	8.		
3. *Salix spp.	Shrub	FAC	9.		
4. *Lysichitum americanum	Herbaceous	OBL	10		
5. *Ranunculus repens	Herbaceous	FACW	11.		
6. *Oenanthe sarmentosa	Herbaceous	OBL	12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 83%

Remarks:

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: 4 inches

Depth to Saturated Soil: 2 inches

Recorded data

____ **Stream, lake, or tide gauge**
____**Aerial photography**
____**Other** ____ **No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:

___Inundated
X_ Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)

___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___ Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 72A Warrenton Fine Sandy Loam **On Hydric Soils List:** Yes

Classification: Isomesic typic tropaquepts **Drainage Class:** Very poorly drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-10"	O	10yr2/1	Silty Loam		
10-15"	A	10yr3/1	Sandy Loam		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
_X_Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
_X_Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION **Is the Sampling Point Within a Wetland?** ***Yes*** No

Hydrophytic Vegetation Present? ***Yes*** No
Wetland Hydrology Present? ***Yes*** No
Hydric Soils Present? ***Yes*** No

Remarks:
-Perched culvert at site
-Upland edge: evergreen blackberry, alders on fringe, spruce on outer fringe, and Himalayan blackberry.

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W4b **Investigator:** AW, AS	**Date:** 5-12-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0430699998 **Longitude: -123.915120000** **Township:** 7N **Range:** 10W **Section:** 34

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** PSS **HGM:** RFT

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cornus sericea	Tree	FACW	7. *Ranunculus repens	Herbaceous	FACW
2. *Rubus ursinus	Shrub	FACU	8.		
3. *Spirea douglasii	Herbaceous	FACW	9.		
4. *Iris psuedocorus	Herbaceous	OBL	10		
5. *Oenanthe sarmentosa	Herbaceous	OBL	11.		
6. Juncus effusus	Herbaceous	FACW	12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 83%

Remarks:

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: 14 inches

Depth to Saturated Soil: 6 inches

Recorded data

____ **Stream, lake, or tide gauge**
____ **Aerial photography**
____ **Other** ____ **No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:

___Inundated
X Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)

X Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 19C Gearhart Fine Sandy Loam

On Hydric Soils List: No, but has hydric inclusions

Classification: Isomesic typic tropaquepts

Drainage Class: Very poorly drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-4	OA	10YR 2/1	Sandy Loam		
4-16	AB	10YR 2/1	Sandy Loam		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
_X_Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? ***Yes*** No

Hydrophytic Vegetation Present? ***Yes*** No
Wetland Hydrology Present? ***Yes*** No
Hydric Soils Present? ***Yes*** No

Remarks:

Other wetland indicators include landscape position; the wetland is located at the toe slope of a hillside.

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W4c **Investigator:** AW, AS	**Date:** 5-12-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0431599999 **Longitude: -123.915230000** **Township:** 7N **Range:** 10W **Section:** 34

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** Upland **HGM:** Upland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Sambucus racemosa	Shrub	FACU	7. Galium trifidium	Herbaceous	FAC+
2. *Rubus ursinus	Shrub	FACU	8.Trifolium pratense	Herbaceous	FACU
3. *Rosa nootkana	Shrub	FAC	9.		
4. Juncus effusus	Herbaceous	FACW	10		
5. Polysticum munitum	Herbaceous	FACU	11.		
6. *Holcus lanatus	Herbaceous	FAC	12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 50%

Remarks:

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: none

Depth to Saturated Soil: none

Recorded data
____ **Stream, lake, or tide gauge**
____**Aerial photography**
____**Other** ____ **No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
___ Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 19C Gearhart fine sandy loam

On Hydric Soils List: No

Classification: Isomesic Typic Dystropepts

Drainage Class: Excessively drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-5		10YR 2/1	LSD	5YR 4/6	Concentration/in the matrix 30%
5-18		10YR 4/6	LSD		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
__X__Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? Yes *No*

Hydrophytic Vegetation Present? Yes *No*
Wetland Hydrology Present? Yes *No*
Hydric Soils Present? *Yes* No

Remarks:

Soil meets low chroma soil indicator with mottles, however the landscape position has the plot on the second terrace above an unnamed slough; the vegetation is primarily unreliable indicators and majority of dominant plants are as likely to grow in uplands as frequently as wetlands. It is determined that this plot is right on the transition from wetland to non-wetland.

WETLAND SUMMARY SHEET

Project Name: City of Gearhart, Local Wetlands Inventory

Date of Field Verification	10/13/2004	**Wetland Code**		W5
		Sample Plot Codes		
Investigators	AW, CM	**Size (acres)**	6.37	
Determination	Wetland	**Locally Significant?**		Yes
Wetland Classification(s)	**Cowardin:** PABH, PSS	**HGM:** Riverine impounding, DCNP		

LOCATION

Township: 7N	**Range:** 10W	**Section:** 34	**Tax Lots** 01500 01200 01000
Descriptive Location (address): Wetlands are oriented north to south and parallel HWY 101, which makes up their eastern border. They begin north of Gearhart Lane and continue to the northern edge of the UGB.			

HYDROLOGY

Hydrologic Basin	Necanicum Watershed
Hydrologic Source	Precipitation, overland flow
Estuarine/Freshwater	Freshwater

SOILS

Soil Types	Warrenton fine sandy loam
Hydric?	Yes

DOMINANT WETLAND VEGETATION

TREES	SHRUBS	HERBS
Red alder (Alnus Rubra)	Sitka willow (Salix sitchensis)	Common rush (Juncus effusus)
Cascara (Rhamnus purshiana)	Douglas spirea (Spirea douglasii)	Pacific water parsley (Oenanthe sarmentosa)
	Willow (Salix spp.)	Slough sedge (Carex obnupta)
		Pacific silverweed (Potentilla pacifica)
		Duckweed (Lemna minor)
		Biden cernua
		Skunk cabbage (Lysichitum americanum)
		Creeping buttercup (Ranunculus repens)

COMMENTS (describe wetland, land uses, alterations, basis of wetland boundary determination, etc.)

These wetlands represent a semi-isolated portion of the interdunal swale complex within the City of Gearhart. Wetland is also influenced by runoff patterns from right of way Highway 101. Boundary of wetland is determined by shoulder of HWY 101 right of way and development on both eastern and southern edge. Western edge is defined by north-south dune pattern as they transition upward in elevation from swale to sandy dune soil types permitting propagation of upland species. Cumulatively these borders contribute to limiting this wetland from interacting with other wetland types in the study area. Vegetation is well developed around the wetland dominated by a moderate shrub-scrub buffer around upper fringes of wetland boundary. This area has been delineated in the past (reference WD#960577)

OFWAM RESULTS

Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Locally Significant?
Provides some wildlife habitat	NA	Water quality function is impacted or degraded	Hydrologic control is intact	Yes

WETLAND SUMMARY SHEET

Project Name: City of Gearhart, Local Wetlands Inventory

Date of Field Verification	12/13/2004, 4/21/2009 5/12/2009
Investigators	AW, AS
Determination	Wetland
Wetland Classification(s)	**Cowardin:** PSS, PEM

Wetland Code	W6
Sample Plot Codes	W6a, W6b, W6c, W6d, W6e, W6f
Size (acres)	40.59
Locally Significant?	Yes
HGM: Riverine impounding, Riverine Flow Through	

LOCATION

Township: 6N	**Range:** 10W	**Section:** 10
Descriptive Location (address): W9 wetlands are located in the southeast corner of the Gearhart UGB. They begin at the southern end of the UGB and continue to Pacific Way.		

Tax Lots
01000 00900 00801 00800 00700 00602 00500 00400 00301 00300 00201 00200 00102 00101 00100 02600 02500 02200 01201 01200 01101 01100 01000 00900 00800 00700 00600 00500 00400 00301 00200 00100

HYDROLOGY

Hydrologic Basin	Neacoxie Watershed
Hydrologic Source	Overland flow, precipitation Creek flow
Estuarine/Freshwater	Freshwater

SOILS

Soil Types	19C Gearhart fine sandy loam 72A Warrenton loamy fine sand
Hydric?	Yes Yes

DOMINANT WETLAND VEGETATION

TREES	HERBS	
Red alder (Alnus rubra)	Reed canary grass (Phalaris arundinacea)	Common rush (Juncus effusus)
Cascara (Rhamnus purshiana)	Lily of the valley (Maianthemum dilatatum)	Pacific water parsley (Oenanthe sarmentosa)
Dogwood (Cornus sericea)	Red clover (Trifolium pretense)	Slough sedge (Carex obnupta)
	Velvet grass (Hocus lanatus)	Pacific silverweed (Potentilla pacifica)
SHRUBS		Duck weed (Lemna minor)
Sitka Willow (Salix sitchensis)		Biden cernua
Douglas spirea (Spirea douglasii)		Skunk cabbage (Lysichitum americanum)
Hookers willow (Salix hookeriana)		Creeping buttercup (Ranunculus repens)
Huckleberry (Vaccinium parvifolium)		Convolvulus spp.
Red elderberry (Sambucus racemosa)		Baltic rush (Juncus balticus)

COMMENTS (describe wetland, land uses, alterations, basis of wetland boundary determination, etc.)

These wetlands are located in mixed residential and remaining agricultural land use within UGB boundary. Wetland boundaries are defined in large part by sand dunes on the western edge where a railroad trestle was constructed. Wetland lobes along the swale corridor are semi-fragmented from east-west road crossings and undersized culverts. Relatively intact wetland conditions are expressed in residential patches with well-established microtopography and mature stands of native herbaceous plants interspersed with mature shrub-scrub and woody species colonized on hummock features. A wetland delineation (WD#960577) has been completed for part of the area.

OFWAM RESULTS

Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Locally Significant?
Provides diverse wildlife habitat	Fish Habitat is impacted or degraded	Water quality function is impacted or degraded	Hydrologic control is intact	Yes

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W6a **Investigator:** AW, AS	**Date:** 5-12-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0238199079 **Longitude: -123.909049806** **Township**: 6N **Range:** 10W **Section**:10

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** PSS **HGM:** RFT

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cornus sericea	Tree	FACW	7.		
2. *Alnus rubra	Tree	FAC	8.		
3. *Salix hookeriana	Shrub	FACW-	9.		
4. *Rubus spectabilis	Shrub	FAC+	10		
5. Sambucus racemosa	Shrub	FACU	11.		
6. *Carex obnupta	Herbaceous	OBL	12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 100%

Remarks:
Heavy precipitation over the past several days and nights
*Indicated dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: 12 inches

Depth to Saturated Soil: to surface

Recorded data
____ **Stream, lake, or tide gauge**
____**Aerial photography**
____**Other** ____ **No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
X_Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 19C Gearhart fine loamy sand, 72A Warrenton loamy fine sand

On Hydric Soils List: No, Yes

Classification: Isomesic Typic Dystropepts; Isomesic typic tropaquepts

Drainage Class: Excessively drained, Very poorly drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-4	O	10YR 3/2	Loam		
4-12	A	10YR 3/1	Sandy Clay Loam		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
_X_Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
_X_Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? ***Yes*** No

Hydrophytic Vegetation Present? ***Yes*** No
Wetland Hydrology Present? ***Yes*** No
Hydric Soils Present? ***Yes*** No

Remarks:

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W6b **Investigator:** AW, AS	**Date:** 5-12-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0234699050 **Longitude: -123.908220101** **Township:** 6N **Range:** 10W **Section:** 10

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** PEM **HGM:** RI

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cornus sericea	Shrub	FACW	7.		
2. *Rubus spectabilis	Shrub	FAC+	8.		
3. *Maianthemum dilatatum	Herbaceous	FAC	9.		
4. *Lysichiton americanum	Herbaceous	OBL	10		
5. *Carex obnupta	Herbaceous	OBL	11.		
6. Athyrium felix-femina	Herbaceous	FAC	12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 100%

Remarks:

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: 12 inches

Depth to Saturated Soil: 10 inches

Recorded data
____ **Stream, lake, or tide gauge**
____**Aerial photography**
____**Other** ____ **No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
X__ Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 19C Gearhart fine loamy sand, 72A Warrenton fine sandy loam

On Hydric Soils List: No, Yes

Classification: Isomesic Typic Dystropepts; Isomesic typic tropaquepts

Drainage Class: Excessively drained, Very poorly drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-1	O				
1-8.5	A	10YR 2/2	Sandy Loam		
8.5-18	B	10YR 4/1	Loamy Sand		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
_X_Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? *Yes* No

Hydrophytic Vegetation Present? *Yes* No
Wetland Hydrology Present? *Yes* No
Hydric Soils Present? *Yes* No

Remarks:

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W6c **Investigator:** AW, AS	**Date:** 5-12-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0235084365 **Longitude: -123.908505601** **Township**: 6N **Range:** 10W **Section**: 10

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** Upland **HGM:** Upland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Acer macrophyllum	Tree	FACU	7.		
2. Ilex aquifolium	Shrub	NOL	8.		
3.* Rubus ursinus	Shrub	FACU	9.		
4. *Gaultheria shallon	Shrub	FACU	10		
5.*Maianthemum dilatatum	Herbaceous	FAC	11.		
6.			12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 25%

Remarks:

*Indicated dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: none

Depth to Saturated Soil: none

Recorded data

____ **Stream, lake, or tide gauge**
____**Aerial photography**
____**Other** ____ **No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:

___Inundated
___ Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)

___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 19C Gearhart fine loamy sand, 72A Warrenton loamy fine sand

On Hydric Soils List: No, Yes

Classification: Isomesic typic dystropepts , Isomesic typic tropaquepts

Drainage Class: Excessively drained, Very poorly drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-4	O				
4-12	A	10YR 2/1	LSD		
12-18	B	10YR 3/3	LSD		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
___X__Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? Yes ***No***

Hydrophytic Vegetation Present? Yes ***No***
Wetland Hydrology Present? Yes ***No***
Hydric Soils Present? ***Yes*** No

Remarks:

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W6d **Investigator:** AW, AS	**Date:** 4-24-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0288999997 **Longitude: -123.907730000** **Township:** 6N **Range:** 10W **Section:** 03

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** PEM **HGM:** RI

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1.*Vaccinium parvifolium	Shrub	NOL	7.		
2.Sambucus racemosa	Shrub	FACU	8.		
3.*Malus fusca	Shrub	FACW	9.		
4.*Carex obnupta	Herbaceous	OBL	10		
5.			11.		
6.			12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 67%

Remarks:

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: none

Depth to Saturated Soil: 11 inches

Recorded data
____ **Stream, lake, or tide gauge**
____**Aerial photography**
____**Other** ____ **No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
X_ Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 72A Warrenton loamy fine sand

On Hydric Soils List: Yes

Classification: Isomesic typic tropaquepts

Drainage Class: Very poorly drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-9"	OA	10YR 2/1	CL	7.5YR 3/2	
9-16"	AB	10YR 2/1	CL	7.5YR 3/3	

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
_X_Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
_X_Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? ***Yes*** No

Hydrophytic Vegetation Present? ***Yes*** No
Wetland Hydrology Present? ***Yes*** No
Hydric Soils Present? ***Yes*** No

Remarks:

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W6e **Investigator:** AW, AS	**Date:** 4-21-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0289188257 **Longitude: -123.907183570** **Township:** 6N **Range:** 10W **Section:** 03

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** Upland **HGM:** Upland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Malus fusca	Tree	FACW	7.*Carex obnupta	Herbaceous	OBL
2. *Vaccinium parvifolium	Shrub	NOL	8. Ranunculus repens	Herbaceous	FACW
3. Rubus ursinus	Shrub	FACU	9. *Holcus lanatus	Herbaceous	FAC
4. Gultheria shallon	Shrub	FACU	10		
5. *Rubus spectabilis	Shrub	FAC+	11.		
6. Sambucus racemosa	Shrub	FACU	12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 80%

Remarks:

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: none

Depth to Saturated Soil: none

Recorded data
____ **Stream, lake, or tide gauge**
____**Aerial photography**
____**Other** ____ **No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
___ Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 72A Warrenton loamy fine sand

On Hydric Soils List: Yes

Classification: Isomesic typic tropaquepts

Drainage Class: Very poorly drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-1	OA		Sandy Loam		
1-8	A	7.5YR 3/3	Sandy Loam		

Hydric Soils Indicators

____Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
____Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? Yes *No*

Hydrophytic Vegetation Present? *Yes* No
Wetland Hydrology Present? Yes *No*
Hydric Soils Present? Yes *No*

Remarks:
Vegetation meets 50/20 indicator, but dominant species are not reliable indicators as they are mostly FAC listed species; upland determination is based on high chroma soils, no saturation or water table present and landscape position.

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W6f **Investigator:** AW, AS	**Date:** 4-22-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0294646425 **Longitude: -123.907485323** **Township:** 6N **Range:** 10W **Section:** 03

Do Normal Circumstances Exist? Yes *No* **Is the site significantly disturbed?** *Yes* No **Is the area a potential Problem Area?** *Yes* No	**Wetland Classification** **Cowardin:** Upland **HGM:** Upland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Domestic lawn grass	Herbaceous	FAC(est)	7.		
2.			8.		
3.			9.		
4.			10		
5.			11.		
6.			12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 100%

Remarks: Sample plot was taken in backyard, plant community a maintained lawn.

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: 16 inches

Depth to Saturated Soil: 13 inches

Recorded data
____ **Stream, lake, or tide gauge**
____**Aerial photography**
____**Other** ____ **No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
___ Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 19C Gearhart Fine Sandy Loam

On Hydric Soils List: No

Classification: Isomesic Typic Dystropepts

Drainage Class: Excessively drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-5	O	10yr 3/2 (70%) 10yr 3/4 (30%)	Silt Loam		
5-13	A	10yr 2/1 (70%) 5yr 4/6 (30%)	Silt Loam		
13-22	AB	10yr 3/3 (100%)	Clay Loam		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
____Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks: Soil exhibited mixed matrix in color, but it did not appear to be redoximorphic features, it's possible these are relict hydric soils or inclusions.

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? Yes *No*

Hydrophytic Vegetation Present? *Yes* No
Wetland Hydrology Present? Yes *No*
Hydric Soils Present? Yes *No*

Remarks:

Vegetation is an unreliable indicator; the plot was taken in a maintained lawn since the 1980's. The plot borders a slightly lower fenced off tract of land with predominantly OBL wetland vegetation. The plot resides at the transition between the wetland and upland. Soils are close to meeting the low chroma indicator for hydric soils, but without a reliable hydric soils or hydric vegetation indicator the plot was determined to be upland.

WETLAND SUMMARY SHEET

Project Name: City of Gearhart, Local Wetlands Inventory

Date of Field Verification	4/21/2009
Investigators	AW, AS
Determination	Wetland
Wetland Classification(s)	**Cowardin:** PEM, PSS

Wetland Code	W7
Sample Plot Codes	W7a, W7b
Size (acres)	11.17
Locally Significant?	No
HGM: DCNP	

LOCATION

Township: 6N	**Range:** 10W	**Section:** 03

Descriptive Location (address): These wetlands run north to south along the eastern UGB border. To the west they are mostly bordered by single lot housing development.

Tax Lots
03800 03600 03401 03400 03300 03200 03100 02800 02700 02600 02500 02201 02102 02100 01811 01810 01809 01808 01807 01806 01805 01800 01700 01600 01500 01400 01200 01102 01101 01100 01000 00900 00813 00800 00700 00602 00506 00505 00504 00300 00200

HYDROLOGY

Hydrologic Basin	Necanicum watershed
Hydrologic Source	Surface runoff, direct precipitation
Estuarine/Freshwater	Freshwater

SOILS

Soil Types	Gearhart fine sandy loam
Hydric?	Yes

DOMINANT WETLAND VEGETATION

TREES	SHRUBS	HERBS
	Hookers willow (Salix hookeriana)	Slough sedge (Carex obnupta)
		Pacific water parsley (Potentilla pacifica)
		(Baltic rush Juncus balticus)
		Pacific silverweed (Oenanthe sarmentosa)

COMMENTS (describe wetland, land uses, alterations, basis of wetland boundary determination, etc.)

These wetlands were problematic as a result of limited property access and disturbed landscape conditions. Many of the wetlands were mowed back yards, and all reside at the toe slope of an old railroad grade. They are ephemeral wetlands, which experience ponding water during significant rain events, and are hydrologically impaired by development. This area is designated as wetlands in the NWI, but on aerial imagery it is apparent that much of the land has been impacted by housing developments, (i.e. paved roads, cul-de-sacs and houses) but with limited property access granted in this area it was not possible to field truth much of the NWI; it was corrected using the most current aerial imagery and with as many onsite plots as were available.

OFWAM RESULTS

Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Locally Significant?
Provides some wildlife habitat	NA	Water quality function is impacted or degraded	Hydrologic control is intact	Yes

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W7a **Investigator:** AW, AS	**Date:** 4-21-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0392161079 **Longitude: -123.911021434** **Township**: 6N **Range:** 10W **Section**: 03

Do Normal Circumstances Exist? *Yes* No **Is the site significantly disturbed?** Yes *No* **Is the area a potential Problem Area?** Yes *No*	**Wetland Classification** **Cowardin:** PSS **HGM:** DCNP

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Salix hookeriana	Shrub	FACW	7.		
2. *Carex obnupta	Herbaceous	OBL	8.		
3. Potentilla pacifica	Herbaceous	OBL	9.		
4. *Juncus balticus	Herbaceous	FACW	10		
5. *Oenanthe sarmentosa	Herbaceous	OBL	11.		
6. Viola palustris	Herbaceous	OBL	12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 100%

Remarks:

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: none

Depth to Saturated Soil: 12 inches

Recorded data
____ **Stream, lake, or tide gauge**
____**Aerial photography**
____**Other** ____ **No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
X_ Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
X_Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 19C Gearhart fine loamy sand

On Hydric Soils List: No

Classification: Isomesic Typic Dystropepts

Drainage Class: Excessively drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-2	O				
2-12	A	10YR 2/1	Sandy Loam		
12-16	AB	10YR 2/1	Sandy Loam	5YR 4/4	40%

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
X___Gleyed or Low Chroma Colors
____Other (Explain in Remarks)

____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? ***Yes*** No

Hydrophytic Vegetation Present? ***Yes*** No
Wetland Hydrology Present? ***Yes*** No
Hydric Soils Present? ***Yes*** No

Remarks:

This site is located between the toe slope of an existing railroad grade to the east, and elevated land with housing on the west. It runs north to south in the northeastern corner of the Gearhart UGB. Its landscape position creates a depressional ephemeral wetland that experiences regular flooding during the winter. Its hydrologic source is runoff and direct precipitation. The plot was taken in one of the lowest points on the landscape, the area surrounding it is a mowed yard, making it more difficult to verify the exact wetland boundary.

DATA FORM: Routine Wetland Determination

Project: Gearhart Local Wetlands Inventory **Sample Site:** W7b **Investigator:** AW, AS	**Date:** 4-21-2009 **County:** Clatsop **State:** Oregon

Latitude: 46.0392211794 **Longitude: -123.910945952** **Township**: 6N **Range:** 10W **Section**: 03

Do Normal Circumstances Exist? Yes ***No*** **Is the site significantly disturbed?** ***Yes*** No **Is the area a potential Problem Area?** ***Yes*** No	**Wetland Classification** **Cowardin:** Upland **HGM:** Upland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Domestic lawn grass	Herbaceous	FAC(est)	7.		
2. Trifolium pratense	Herbaceous	FACU	8.		
3.			9.		
4.			10		
5.			11.		
6.			12.		

Percent of Dominant Species that are OBL, FACW, or FAC: 100%

Remarks: Wetland indicator status estimated.

*Indicates dominant plant species

HYDROLOGY

Field Observations

Depth of Surface Water: none

Depth of Free Water in Pit: none

Depth to Saturated Soil: none

Recorded data
____ Stream, lake, or tide gauge
____Aerial photography
____Other **____ No recorded data available**

Wetland Hydrology Indicators

Primary Indicators:
___Inundated
___ Saturated in Upper 12 inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands

Secondary Indicators: (2 or more required)
___Oxidized Root Channels in Upper 12 inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Mapped Series: 19CGearhart fine sandy loam

On Hydric Soils List: No

Classification: Isomesic Typic Dystropepts

Drainage Class: Excessively drained

Depth (inches)	Master Horizon	Matrix Color	Soil Texture	Redox Concentrations	
				Color	Abundance/ size/contrast
0-2	OA				
2-10	AB	10YR 3/3	SDL		

Hydric Soils Indicators

____ Histosol
____Histic Epipedon
____Sulfidic Odor
____Aquic Moisture Regime
____Reducing Conditions
____Gleyed or Low Chroma Colors
____Concretions
____High Organic Content in Surface Layers in Sandy Soils
____Organic Streaking in Sandy Soils
____Listed on Local Hydric Soils List
____Listed on National Hydric Soils List
____Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Is the Sampling Point Within a Wetland? Yes *No*

Hydrophytic Vegetation Present? *Yes* No
Wetland Hydrology Present? Yes *No*
Hydric Soils Present? Yes *No*

Remarks:

Plot was taken in lawn adjacent to wetland plot. The landowner has left the lowest depression on their property retain its native vegetation and has maintained a lawn on elevated area of their property.

WETLAND SUMMARY SHEET

Project Name: City of Gearhart, Local Wetlands Inventory

Date of Field Verification	Offsite Evaluation	**Wetland Code**	W8
		Sample Plot Codes	
Investigators	AW, AS	**Size (acres)**	17.61
Determination	Wetland	**Locally Significant?**	Yes
Wetland Classification(s)	**Cowardin:** PFO, PSSC, PEM	**HGM:** Riverine impounding, Riverine flow through	

LOCATION

Township:	**Range:**	**Section:**	**Tax Lots** 800 200 001
Descriptive Location (address): Located in the SE corner of the study area			

HYDROLOGY

Hydrologic Basin	Necanicum watershed
Hydrologic Source	Stream connection, overland flow
Estuarine/Freshwater	Freshwater

SOILS

Soil Types	Gearhart fine sandy loam
Hydric?	Yes

DOMINANT WETLAND VEGETATION

TREES	SHRUBS	HERBS
Sitka spruce (Picea sitchensis)	Willow (Salix sp.)	Douglas spirea (Spirea douglasii)
		Slough sedge (Carex obnupta)
		Cattails (Typha latifolia)

COMMENTS (describe wetland, land uses, alterations, basis of wetland boundary determination, etc.)

W8 is a relatively intact, and contiguous wetland that extend outside the UGB and back again. These wetland are located in the very southeast most area within Gearhart's UGB. Property access was very limited so the wetlands had to be assessed from offsite data sources and adjacent property. The wetlands appear to have a defined channel with limited hydrologic functions due to the development of the Seaside Airport to the south. The dominant plant community is comprised of OBL to FAC plants including Douglas Spirea, Slough Sedge, and willow species.

OFWAM RESULTS

Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Locally Significant?
Provides diverse wildlife habitat	Fish Habitat is intact	Water quality function is impacted or degraded	Hydrologic control is intact	Yes

APPENDIX D. WETLANDS FUNCTION AND CONDITION ASSESSMENT

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FUNCTIONAL ASSESSMENT SUMMARY

Wetland	Wildlife Habitat Function	Fish Habitat Function	Water Quality Function	Hydrologic Function
W1	Provides diverse wildlife habitat	Fish habitat function is impacted or degraded	Water quality function is impacted or degraded	Hydrologic function is intact
W2	Provides some wildlife habitat	Fish habitat function is impacted or degraded	Water quality function is impacted or degraded	Hydrologic function is intact
W3	Provides some wildlife habitat	NA	Water quality function is impacted or degraded	Hydrologic function is intact
W4	Provides diverse wildlife habitat	NA	Water quality function is impacted or degraded	Hydrologic function is intact
W5	Provides some wildlife habitat	NA	Water quality function is impacted or degraded	Hydrologic function is intact
W6	Provides diverse wildlife habitat	Fish Habitat is impacted or degraded	Water quality function is impacted or degraded	Hydrologic function is intact
W7	Provides some wildlife habitat	NA	Water quality function is impacted or degraded	Hydrologic function is intact
W8	Provides diverse wildlife habitat	Fish Habitat is intact	Water quality function is impacted or degraded	Hydrologic function is intact

Wildlife Habitat	W1
1. How many Cowardin classes are visible from primary viewing area? a. More than two b. Two c. One	**A**
2. What is the dominant wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation & ponding/ open water c. Emergent vegetation only or wet meadow	**B**
3. What is the degree of Cowardin class interspersion for the wetland being observed? a. High b. Moderate c. Low	**B**
4. How many acres of open unvegetated water are present in the wetland? a. More than 3 acres b. Between 0.5 and 3 acres c. Less than 0.5 acres	**A**
5. How is the wetland connected to another body of water, such as a stream, lake or pond? a. The wetland is connected by surface water to another body of water b. No surface water connection exists to another body of water, but the wetland lies within 1 mile of the waterbody c. No surface water connection exists to another body of water, and no other bodies of water lie within 1 mile of the waterbody	**A**
6. Are there connections to other wetlands within a 3-mile radius? a. Perennial intermittent stream, irrigation/drainage ditch, culver, canal or lake b. No surface water connection but other wetlands within radius c. Neither	**A**
7. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants.	**A. (However, the lower Neacoxie is water quality limited at a result of E.coli present at stream mile 0.3)**
8. What is the dominant, existing land use within 500 ft of the wetland edge? a. Exclusive forest use or open space b. Agriculture c. Developed uses	**C**

9. Urban areas: percentage of wetland's edge bordered by a vegetative buffer at least 25ft wide? a. Greater than 40% b. Between 10% and 40% c. Less than 10%	**B**
Fish Habitat	**W1**
1. What Percentage of the stream is shaded by riparian vegetation? a. Greater than 75% b. Between 50% and 75% c. Less than 50%	B
2. What is the physical character of the stream channel? a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel b. Only portions of the stream are modified c. The stream is extensively modified or confined in a non-vegetated channel	B
3. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders? a. Greater than 25% b. Between 10% and 25% c. Less than 10%	**C**
4. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non- point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants.	**A (However, the lower Neacoxie is water quality limited at a result of E.coli present at stream mile 0.3)**
5. What is the dominant, existing land use within 500 ft of the wetland edge? a. Exclusive forest use or open space b. Agriculture c. Developed uses	**C**
6. Are fish present in a stream, lake or pond connected to the wetland? a. Salmon, trout or sensitive species are present at some time during the year b. Species nor covered in "a" are present at some time during the year c. No species are present at any time during the year	**A**

Water Quality	W1
1. What is the wetland's primary source of water? a. Surface flow, including streams and ditches b. Precipitation c. Groundwater, including seeps and springs	**A**
2. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	**A**
3. What is the degree of wetland vegetation cover? a. High (greater then 60%) b. Moderate (approximately 60%) c. Low (Less than 60%)	C
4. What is the wetland area in acres? a. More than 5 acres b. Between 0.5 and 5 acres; or wetland area is less than 0.5 acres and the wetland is connected to other wetlands within a 3 mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake c. Less than 0.5 acres, and the wetland is not connected to other wetlands within a 3 mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake	**A**
5. What is the dominant, existing land use within 500 ft of the wetland edge? a. Developed uses b. Agriculture c. Exclusive forest use or open space	**A**
6. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants.	**A**
Hydrologic Control	**W1**
1. Is the wetland located within the 100-year floodplain? a. Yes b. No	**A**
2. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	**A**
3. What is the wetlands area in acres? a. More than 5 b. Between 0.5 and 5 acres	**A**

c. Less than 0.5 acres	
4. Is water flow out of the wetland restricted? a. Yes, the outlet is restricted or the wetland has not outlet b. Minor restrictions slow down the water c. No, the outlet has unrestricted flow	**B**
5. What is the dominant existing wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation, ponding, or open water only c. Emergent vegetation or wet meadow	**B**
6. What is the dominant, existing land use within 500 ft of the wetland edge? a. Developed uses b. Agriculture c. Exclusive forest use or open space	**B**
7. What is the dominant land use in the watershed upstream from the assessment area? a. Urban or urbanizing b. Agriculture c. Forested or natural area	**A**

Wildlife Habitat	W2
1. How many Cowardin classes are visible from primary viewing area? a. More than two b. Two c. One	**A**
2. What is the dominant wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation & ponding/ open water c. Emergent vegetation only or wet meadow	**A**
3. What is the degree of Cowardin class interspersion for the wetland being observed? a. High b. Moderate c. Low	**B**
4. How many acres of open unvegetated water are present in the wetland? a. More than 3 acres b. Between 0.5 and 3 acres c. Less than 0.5 acres	**C**
5. How is the wetland connected to another body of water, such as a stream, lake or pond? a. The wetland is connected by surface water to another body of water b. No surface water connection exists to another body of water, but the wetland lies within 1 mile of the waterbody c. No surface water connection exists to another body of water, and no other bodies of water lie within 1 mile of the waterbody	**B**
6. Are there connections to other wetlands within a 3-mile radius? a. Perennial intermittent stream, irrigation/drainage ditch, culver, canal or lake b. No surface water connection but other wetlands within radius c. Neither	**B**
7. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants.	**B the lower Neacoxie is water quality limited at a result of E.coli present at stream mile 0.3**
8. What is the dominant, existing land use within 500 ft of the wetland edge? a. Exclusive forest use or open space b. Agriculture c. Developed uses	**C**

9. Urban areas: percentage of wetland's edge bordered by a vegetative buffer at least 25ft wide? a. Greater than 40% b. Between 10% and 40% c. Less than 10%	**B**

Fish Habitat	W2
1. What Percentage of the stream is shaded by riparian vegetation? a. Greater than 75% b. Between 50% and 75% c. Less than 50%	**B**
2. What is the physical character of the stream channel? a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel b. Only portions of the stream are modified c. The stream is extensively modified or confined in a non-vegetated channel	**B**
3. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders? a. Greater than 25% b. Between 10% and 25% c. Less than 10%	**B**
4. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants.	**B the lower Neacoxie is water quality limited at a result of E.coli present at stream mile 0.3**
5. What is the dominant, existing land use within 500 ft of the wetland edge? a. Exclusive forest use or open space b. Agriculture c. Developed uses	**C**
6. Are fish present in a stream, lake or pond connected to the wetland? a. Salmon, trout or sensitive species are present at some time during the year b. Species nor covered in "a" are present at some time during the year c. No species are present at any time during the year	**B**

Water Quality	W2
1. What is the wetland's primary source of water? a. Surface flow, including streams and ditches b. Precipitation c. Groundwater, including seeps and springs	**A**
2. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	**A**
3. What is the degree of wetland vegetation cover? a. High (greater then 60%) b. Moderate (approximately 60%) c. Low (Less than 60%)	**A**
4. What is the wetland area in acres? a. More than 5 acres b. Between 0.5 and 5 acres; or wetland area is less than 0.5 acres and the wetland is connected to other wetlands within a 3 mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake c. Less than 0.5 acres, and the wetland is not connected to other wetlands within a 3 mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake	**A**
5. What is the dominant, existing land use within 500 ft of the wetland edge? a. Developed uses b. Agriculture c. Exclusive forest use or open space	**A**
6. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants.	**C**

Hydrologic Control	W2
1. Is the wetland located within the 100-year floodplain? a. Yes b. No	**A**
2. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	**A**

3. What is the wetlands area in acres? a. More than 5 b. Between 0.5 and 5 acres c. Less than 0.5 acres	**A**
4. Is water flow out of the wetland restricted? a. Yes, the outlet is restricted or the wetland has not outlet b. Minor restrictions slow down the water c. No, the outlet has unrestricted flow	**B**
5. What is the dominant existing wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation, ponding, or open water only c. Emergent vegetation or wet meadow	**A**
6. What is the dominant, existing land use within 500 ft of the wetland edge? a. Developed uses b. Agriculture c. Exclusive forest use or open space	**A**
7. What is the dominant land use in the watershed upstream from the assessment area? a. Urban or urbanizing b. Agriculture c. Forested or natural area	**A**

Wildlife Habitat	W3
1. How many Cowardin classes are visible from primary viewing area? a. More than two b. Two c. One	**B**
2. What is the dominant wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation & ponding/ open water c. Emergent vegetation only or wet meadow	**A**
3. What is the degree of Cowardin class interspersion for the wetland being observed? a. High b. Moderate c. Low	**B**
4. How many acres of open unvegetated water are present in the wetland? a. More than 3 acres b. Between 0.5 and 3 acres c. Less than 0.5 acres	**A**
5. How is the wetland connected to another body of water, such as a stream, lake or pond? a. The wetland is connected by surface water to another body of water b. No surface water connection exists to another body of water, but the wetland lies within 1 mile of the waterbody c. No surface water connection exists to another body of water, and no other bodies of water lie within 1 mile of the waterbody	**B**
6. Are there connections to other wetlands within a 3-mile radius? a. Perennial intermittent stream, irrigation/drainage ditch, culver, canal or lake b. No surface water connection but other wetlands within radius c. Neither	**B**
7. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants.	**B the lower Neacoxie is water quality limited at a result of E.coli present at stream mile 0.3**
8. What is the dominant, existing land use within 500 ft of the wetland edge? a. Exclusive forest use or open space b. Agriculture c. Developed uses	**C**

9. Urban areas: percentage of wetland's edge bordered by a vegetative buffer at least 25ft wide? a. Greater than 40% b. Between 10% and 40% c. Less than 10%	**A**

Fish Habitat	W3
1. What Percentage of the stream is shaded by riparian vegetation? a. Greater than 75% b. Between 50% and 75% c. Less than 50%	**NA**
2. What is the physical character of the stream channel? a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel b. Only portions of the stream are modified c. The stream is extensively modified or confined in a non-vegetated channel	**NA**
3. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders? a. Greater than 25% b. Between 10% and 25% c. Less than 10%	**NA**
4. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants.	**NA**
5. What is the dominant, existing land use within 500 ft of the wetland edge? a. Exclusive forest use or open space b. Agriculture c. Developed uses	**NA**
6. Are fish present in a stream, lake or pond connected to the wetland? a. Salmon, trout or sensitive species are present at some time during the year b. Species nor covered in "a" are present at some time during the year c. No species are present at any time during the year	**NA**

Water Quality	W3
1. What is the wetland's primary source of water? a. Surface flow, including streams and ditches b. Precipitation c. Groundwater, including seeps and springs	**A**
2. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	**B**
3. What is the degree of wetland vegetation cover? a. High (greater then 60%) b. Moderate (approximately 60%) c. Low (Less than 60%)	**C**
4. What is the wetland area in acres? a. More than 5 acres b. Between 0.5 and 5 acres; or wetland area is less than 0.5 acres and the wetland is connected to other wetlands within a 3 mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake c. Less than 0.5 acres, and the wetland is not connected to other wetlands within a 3 mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake	**A**
5. What is the dominant, existing land use within 500 ft of the wetland edge? a. Developed uses b. Agriculture c. Exclusive forest use or open space	**A**
6. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants.	**C**

Hydrologic Control	W3
1. Is the wetland located within the 100-year floodplain? a. Yes b. No	**A**
2. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	**B**
3. What is the wetlands area in acres? a. More than 5	**A**

b. Between 0.5 and 5 acres c. Less than 0.5 acres	
4. Is water flow out of the wetland restricted? a. Yes, the outlet is restricted or the wetland has not outlet b. Minor restrictions slow down the water c. No, the outlet has unrestricted flow	**A**
5. What is the dominant existing wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation, ponding, or open water only c. Emergent vegetation or wet meadow	**A**
6. What is the dominant, existing land use within 500 ft of the wetland edge? a. Developed uses b. Agriculture c. Exclusive forest use or open space	**A**
7. What is the dominant land use in the watershed upstream from the assessment area? a. Urban or urbanizing b. Agriculture c. Forested or natural area	**A**

Wildlife Habitat	W4
1. How many Cowardin classes are visible from primary viewing area? a. More than two b. Two c. One	**A**
2. What is the dominant wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation & ponding/ open water c. Emergent vegetation only or wet meadow	**A**
3. What is the degree of Cowardin class interspersion for the wetland being observed? a. High b. Moderate c. Low	**B**
4. How many acres of open unvegetated water are present in the wetland? a. More than 3 acres b. Between 0.5 and 3 acres c. Less than 0.5 acres	**A**
5. How is the wetland connected to another body of water, such as a stream, lake or pond? a. The wetland is connected by surface water to another body of water b. No surface water connection exists to another body of water, but the wetland lies within 1 mile of the waterbody c. No surface water connection exists to another body of water, and no other bodies of water lie within 1 mile of the waterbody	**B**
6. Are there connections to other wetlands within a 3-mile radius? a. Perennial intermittent stream, irrigation/drainage ditch, culver, canal or lake b. No surface water connection but other wetlands within radius c. Neither	**B**
7. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants.	**B the lower Neacoxie is water quality limited at a result of E.coli present at stream mile 0.3**
8. What is the dominant, existing land use within 500 ft of the wetland edge? a. Exclusive forest use or open space b. Agriculture c. Developed uses	**C**

9. Urban areas: percentage of wetland's edge bordered by a vegetative buffer at least 25ft wide? a. Greater than 40% b. Between 10% and 40% c. Less than 10%	**A**

Fish Habitat	W4
1. What Percentage of the stream is shaded by riparian vegetation? a. Greater than 75% b. Between 50% and 75% c. Less than 50%	**NA**
2. What is the physical character of the stream channel? a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel b. Only portions of the stream are modified c. The stream is extensively modified or confined in a non-vegetated channel	**NA**
3. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders? a. Greater than 25% b. Between 10% and 25% c. Less than 10%	**NA**
4. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants.	**NA**
5. What is the dominant, existing land use within 500 ft of the wetland edge? a. Exclusive forest use or open space b. Agriculture c. Developed uses	**NA**
6. Are fish present in a stream, lake or pond connected to the wetland? a. Salmon, trout or sensitive species are present at some time during the year b. Species nor covered in "a" are present at some time during the year c. No species are present at any time during the year	**NA**

Water Quality	W4
1. What is the wetland's primary source of water? a. Surface flow, including streams and ditches b. Precipitation c. Groundwater, including seeps and springs	**A**
2. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	**B**
3. What is the degree of wetland vegetation cover? a. High (greater then 60%) b. Moderate (approximately 60%) c. Low (Less than 60%)	**C**
4. What is the wetland area in acres? a. More than 5 acres b. Between 0.5 and 5 acres; or wetland area is less than 0.5 acres and the wetland is connected to other wetlands within a 3 mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake c. Less than 0.5 acres, and the wetland is not connected to other wetlands within a 3 mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake	**A**
5. What is the dominant, existing land use within 500 ft of the wetland edge? a. Developed uses b. Agriculture c. Exclusive forest use or open space	**A**
6. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants.	**C**
Hydrologic Control	**W4**
1. Is the wetland located within the 100-year floodplain? a. Yes b. No	**B**
2. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	**B**
3. What is the wetlands area in acres? a. More than 5 b. Between 0.5 and 5 acres	**A**

c. Less than 0.5 acres	
4. Is water flow out of the wetland restricted? a. Yes, the outlet is restricted or the wetland has not outlet b. Minor restrictions slow down the water c. No, the outlet has unrestricted flow	**A**
5. What is the dominant existing wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation, ponding, or open water only c. Emergent vegetation or wet meadow	**A**
6. What is the dominant, existing land use within 500 ft of the wetland edge? a. Developed uses b. Agriculture c. Exclusive forest use or open space	**A**
7. What is the dominant land use in the watershed upstream from the assessment area? a. Urban or urbanizing b. Agriculture c. Forested or natural area	**A**

Wildlife Habitat	W5
1. How many Cowardin classes are visible from primary viewing area? a. More than two b. Two c. One	**B**
2. What is the dominant wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation & ponding/ open water c. Emergent vegetation only or wet meadow	**A**
3. What is the degree of Cowardin class interspersion for the wetland being observed? a. High b. Moderate c. Low	**B**
4. How many acres of open unvegetated water are present in the wetland? a. More than 3 acres b. Between 0.5 and 3 acres c. Less than 0.5 acres	**C**
5. How is the wetland connected to another body of water, such as a stream, lake or pond? a. The wetland is connected by surface water to another body of water b. No surface water connection exists to another body of water, but the wetland lies within 1 mile of the waterbody c. No surface water connection exists to another body of water, and no other bodies of water lie within 1 mile of the waterbody	**B**
6. Are there connections to other wetlands within a 3-mile radius? a. Perennial intermittent stream, irrigation/drainage ditch, culver, canal or lake b. No surface water connection but other wetlands within radius c. Neither	**B**
7. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants.	**A**
8. What is the dominant, existing land use within 500 ft of the wetland edge? a. Exclusive forest use or open space b. Agriculture c. Developed uses	**C**

9. Urban areas: percentage of wetland's edge bordered by a vegetative buffer at least 25ft wide? a. Greater than 40% b. Between 10% and 40% c. Less than 10%	**B**

Fish Habitat	W5
1. What Percentage of the stream is shaded by riparian vegetation? a. Greater than 75% b. Between 50% and 75% c. Less than 50%	**NA**
2. What is the physical character of the stream channel? a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel b. Only portions of the stream are modified c. The stream is extensively modified or confined in a non-vegetated channel	**NA**
3. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders? a. Greater than 25% b. Between 10% and 25% c. Less than 10%	**NA**
4. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants.	**NA**
5. What is the dominant, existing land use within 500 ft of the wetland edge? a. Exclusive forest use or open space b. Agriculture c. Developed uses	**NA**
6. Are fish present in a stream, lake or pond connected to the wetland? a. Salmon, trout or sensitive species are present at some time during the year b. Species nor covered in "a" are present at some time during the year c. No species are present at any time during the year	**NA**

Water Quality	W5
1. What is the wetland's primary source of water? a. Surface flow, including streams and ditches b. Precipitation c. Groundwater, including seeps and springs	**A**
2. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	**B**
3. What is the degree of wetland vegetation cover? a. High (greater then 60%) b. Moderate (approximately 60%) c. Low (Less than 60%)	**A**
4. What is the wetland area in acres? a. More than 5 acres b. Between 0.5 and 5 acres; or wetland area is less than 0.5 acres and the wetland is connected to other wetlands within a 3 mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake c. Less than 0.5 acres, and the wetland is not connected to other wetlands within a 3 mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake	**A**
5. What is the dominant, existing land use within 500 ft of the wetland edge? a. Developed uses b. Agriculture c. Exclusive forest use or open space	**A**
6. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants.	**C**
Hydrologic Control	**W5**
1. Is the wetland located within the 100-year floodplain? a. Yes b. No	**B**
2. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	**A**
3. What is the wetlands area in acres? a. More than 5 b. Between 0.5 and 5 acres	**A**

c. Less than 0.5 acres	
4. Is water flow out of the wetland restricted? a. Yes, the outlet is restricted or the wetland has not outlet b. Minor restrictions slow down the water c. No, the outlet has unrestricted flow	**A**
5. What is the dominant existing wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation, ponding, or open water only c. Emergent vegetation or wet meadow	**A**
6. What is the dominant, existing land use within 500 ft of the wetland edge? a. Developed uses b. Agriculture c. Exclusive forest use or open space	**A**
7. What is the dominant land use in the watershed upstream from the assessment area? a. Urban or urbanizing b. Agriculture c. Forested or natural area	**A**

Wildlife Habitat	W6
1. How many Cowardin classes are visible from primary viewing area? a. More than two b. Two c. One	**A**
2. What is the dominant wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation & ponding/ open water c. Emergent vegetation only or wet meadow	**B**
3. What is the degree of Cowardin class interspersion for the wetland being observed? a. High b. Moderate c. Low	**A**
4. How many acres of open unvegetated water are present in the wetland? a. More than 3 acres b. Between 0.5 and 3 acres c. Less than 0.5 acres	**A**
5. How is the wetland connected to another body of water, such as a stream, lake or pond? a. The wetland is connected by surface water to another body of water b. No surface water connection exists to another body of water, but the wetland lies within 1 mile of the waterbody c. No surface water connection exists to another body of water, and no other bodies of water lie within 1 mile of the waterbody	**A**
6. Are there connections to other wetlands within a 3-mile radius? a. Perennial intermittent stream, irrigation/drainage ditch, culver, canal or lake b. No surface water connection but other wetlands within radius c. Neither	**A**
7. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants.	**A**
8. What is the dominant, existing land use within 500 ft of the wetland edge? a. Exclusive forest use or open space b. Agriculture c. Developed uses	**C**

9. Urban areas: percentage of wetland's edge bordered by a vegetative buffer at least 25ft wide? a. Greater than 40% b. Between 10% and 40% c. Less than 10%	**A**

Fish Habitat	W6
1. What Percentage of the stream is shaded by riparian vegetation? a. Greater than 75% b. Between 50% and 75% c. Less than 50%	**C**
2. What is the physical character of the stream channel? a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel b. Only portions of the stream are modified c. The stream is extensively modified or confined in a non-vegetated channel	**B**
3. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders? a. Greater than 25% b. Between 10% and 25% c. Less than 10%	**B**
4. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants.	**A**
5. What is the dominant, existing land use within 500 ft of the wetland edge? a. Exclusive forest use or open space b. Agriculture c. Developed uses	**C**
6. Are fish present in a stream, lake or pond connected to the wetland? a. Salmon, trout or sensitive species are present at some time during the year b. Species nor covered in "a" are present at some time during the year c. No species are present at any time during the year	**B**

Water Quality	W6
1. What is the wetland's primary source of water? a. Surface flow, including streams and ditches b. Precipitation c. Groundwater, including seeps and springs	**A**
2. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	**A**
3. What is the degree of wetland vegetation cover? a. High (greater then 60%) b. Moderate (approximately 60%) c. Low (Less than 60%)	**C**
4. What is the wetland area in acres? a. More than 5 acres b. Between 0.5 and 5 acres; or wetland area is less than 0.5 acres and the wetland is connected to other wetlands within a 3 mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake c. Less than 0.5 acres, and the wetland is not connected to other wetlands within a 3 mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake	**A**
5. What is the dominant, existing land use within 500 ft of the wetland edge? a. Developed uses b. Agriculture c. Exclusive forest use or open space	**A**
6. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants.	**C**
Hydrologic Control	**W6**
1. Is the wetland located within the 100-year floodplain? a. Yes b. No	**A**
2. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	**A**
3. What is the wetlands area in acres? a. More than 5 b. Between 0.5 and 5 acres	**A**

c. Less than 0.5 acres	
4. Is water flow out of the wetland restricted? a. Yes, the outlet is restricted or the wetland has not outlet b. Minor restrictions slow down the water c. No, the outlet has unrestricted flow	**B**
5. What is the dominant existing wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation, ponding, or open water only c. Emergent vegetation or wet meadow	**A**
6. What is the dominant, existing land use within 500 ft of the wetland edge? a. Developed uses b. Agriculture c. Exclusive forest use or open space	**A**
7. What is the dominant land use in the watershed upstream from the assessment area? a. Urban or urbanizing b. Agriculture c. Forested or natural area	**A**

Wildlife Habitat	W7
1. How many Cowardin classes are visible from primary viewing area? a. More than two b. Two c. One	**C**
2. What is the dominant wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation & ponding/ open water c. Emergent vegetation only or wet meadow	**B**
3. What is the degree of Cowardin class interspersion for the wetland being observed? a. High b. Moderate c. Low	**C**
4. How many acres of open unvegetated water are present in the wetland? a. More than 3 acres b. Between 0.5 and 3 acres c. Less than 0.5 acres	**B**
5. How is the wetland connected to another body of water, such as a stream, lake or pond? a. The wetland is connected by surface water to another body of water b. No surface water connection exists to another body of water, but the wetland lies within 1 mile of the waterbody c. No surface water connection exists to another body of water, and no other bodies of water lie within 1 mile of the waterbody	**B**
6. Are there connections to other wetlands within a 3-mile radius? a. Perennial intermittent stream, irrigation/drainage ditch, culver, canal or lake b. No surface water connection but other wetlands within radius c. Neither	**B**
7. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants.	**A**
8. What is the dominant, existing land use within 500 ft of the wetland edge? a. Exclusive forest use or open space b. Agriculture c. Developed uses	**C**

9. Urban areas: percentage of wetland's edge bordered by a vegetative buffer at least 25ft wide? a. Greater than 40% b. Between 10% and 40% c. Less than 10%	**C**

Fish Habitat	W7
1. What Percentage of the stream is shaded by riparian vegetation? a. Greater than 75% b. Between 50% and 75% c. Less than 50%	**NA**
2. What is the physical character of the stream channel? a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel b. Only portions of the stream are modified c. The stream is extensively modified or confined in a non-vegetated channel	**NA**
3. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders? a. Greater than 25% b. Between 10% and 25% c. Less than 10%	**NA**
4. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants.	**NA**
5. What is the dominant, existing land use within 500 ft of the wetland edge? a. Exclusive forest use or open space b. Agriculture c. Developed uses	**NA**
6. Are fish present in a stream, lake or pond connected to the wetland? a. Salmon, trout or sensitive species are present at some time during the year b. Species nor covered in "a" are present at some time during the year c. No species are present at any time during the year	**NA**

Water Quality	W7
1. What is the wetland's primary source of water? a. Surface flow, including streams and ditches b. Precipitation c. Groundwater, including seeps and springs	**B**
2. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	**C**
3. What is the degree of wetland vegetation cover? a. High (greater then 60%) b. Moderate (approximately 60%) c. Low (Less than 60%)	**A**
4. What is the wetland area in acres? a. More than 5 acres b. Between 0.5 and 5 acres; or wetland area is less than 0.5 acres and the wetland is connected to other wetlands within a 3 mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake c. Less than 0.5 acres, and the wetland is not connected to other wetlands within a 3 mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake	**A**
5. What is the dominant, existing land use within 500 ft of the wetland edge? a. Developed uses b. Agriculture c. Exclusive forest use or open space	**A**
6. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants.	**C**

Hydrologic Control	W7
1. Is the wetland located within the 100-year floodplain? a. Yes b. No	**B**
2. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	**B**
3. What is the wetlands area in acres? a. More than 5	**A**

b. Between 0.5 and 5 acres c. Less than 0.5 acres	
4. Is water flow out of the wetland restricted? a. Yes, the outlet is restricted or the wetland has not outlet b. Minor restrictions slow down the water c. No, the outlet has unrestricted flow	**A**
5. What is the dominant existing wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation, ponding, or open water only c. Emergent vegetation or wet meadow	**C**
6. What is the dominant, existing land use within 500 ft of the wetland edge? a. Developed uses b. Agriculture c. Exclusive forest use or open space	**A**
7. What is the dominant land use in the watershed upstream from the assessment area? a. Urban or urbanizing b. Agriculture c. Forested or natural area	**A**

Wildlife Habitat	W8
1. How many Cowardin classes are visible from primary viewing area? a. More than two b. Two c. One	**B**
2. What is the dominant wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation & ponding/ open water c. Emergent vegetation only or wet meadow	**A**
3. What is the degree of Cowardin class interspersion for the wetland being observed? a. High b. Moderate c. Low	**A**
4. How many acres of open unvegetated water are present in the wetland? a. More than 3 acres b. Between 0.5 and 3 acres c. Less than 0.5 acres	**A**
5. How is the wetland connected to another body of water, such as a stream, lake or pond? a. The wetland is connected by surface water to another body of water b. No surface water connection exists to another body of water, but the wetland lies within 1 mile of the waterbody c. No surface water connection exists to another body of water, and no other bodies of water lie within 1 mile of the waterbody	**A**
6. Are there connections to other wetlands within a 3-mile radius? a. Perennial intermittent stream, irrigation/drainage ditch, culver, canal or lake b. No surface water connection but other wetlands within radius c. Neither	**B**
7. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants.	**A**
8. What is the dominant, existing land use within 500 ft of the wetland edge? a. Exclusive forest use or open space b. Agriculture c. Developed uses	**A**

9. Urban areas: percentage of wetland's edge bordered by a vegetative buffer at least 25ft wide? a. Greater than 40% b. Between 10% and 40% c. Less than 10%	**A**

Fish Habitat	W8
1. What Percentage of the stream is shaded by riparian vegetation? a. Greater than 75% b. Between 50% and 75% c. Less than 50%	**B**
2. What is the physical character of the stream channel? a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel b. Only portions of the stream are modified c. The stream is extensively modified or confined in a non-vegetated channel	**A**
3. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders? a. Greater than 25% b. Between 10% and 25% c. Less than 10%	**A**
4. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants.	**A**
5. What is the dominant, existing land use within 500 ft of the wetland edge? a. Exclusive forest use or open space b. Agriculture c. Developed uses	**A**
6. Are fish present in a stream, lake or pond connected to the wetland? a. Salmon, trout or sensitive species are present at some time during the year b. Species nor covered in "a" are present at some time during the year c. No species are present at any time during the year	**A**

Water Quality	W8
1. What is the wetland's primary source of water? a. Surface flow, including streams and ditches b. Precipitation c. Groundwater, including seeps and springs	**A**
2. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	**A**
3. What is the degree of wetland vegetation cover? a. High (greater then 60%) b. Moderate (approximately 60%) c. Low (Less than 60%)	**A**
4. What is the wetland area in acres? a. More than 5 acres b. Between 0.5 and 5 acres; or wetland area is less than 0.5 acres and the wetland is connected to other wetlands within a 3 mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake c. Less than 0.5 acres, and the wetland is not connected to other wetlands within a 3 mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake	**A**
5. What is the dominant, existing land use within 500 ft of the wetland edge? a. Developed uses b. Agriculture c. Exclusive forest use or open space	**C**
6. What is the water quality condition of the stream reaches in the watershed upstream of the wetland or adjacent to the wetlands? a. One or more upstream or adjacent reaches are listed as *water quality limited* or in severe water quality condition for non-point source pollutants. b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for non-point source pollutants. c. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for non-point source pollutants.	**C**

Hydrologic Control	W8
1. Is the wetland located within the 100-year floodplain? a. Yes b. No	**A**
2. Is there evidence of flooding or ponding during the growing season? a. Yes b. Unable to determine or not applicable c. No	**A**
3. What is the wetlands area in acres? a. More than 5	**A**

b. Between 0.5 and 5 acres c. Less than 0.5 acres	
4. Is water flow out of the wetland restricted? a. Yes, the outlet is restricted or the wetland has not outlet b. Minor restrictions slow down the water c. No, the outlet has unrestricted flow	**B**
5. What is the dominant existing wetland vegetation cover type? a. Woody vegetation b. Emergent vegetation, ponding, or open water only c. Emergent vegetation or wet meadow	**A**
6. What is the dominant, existing land use within 500 ft of the wetland edge? a. Developed uses b. Agriculture c. Exclusive forest use or open space	**C**
7. What is the dominant land use in the watershed upstream from the assessment area? a. Urban or urbanizing b. Agriculture c. Forested or natural area	**C**

APPENDIX E. WETLANDS OF SPECIAL INTEREST FOR PROTECTION

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Wetlands of Special Interest for Protection

Wetland Code: W1	YES	NO
Does the wetland contain threatened, endangered or sensitive species of wildlife, plants, invertebrates, or fish?		X
Is the wetland designated as critical habitat or essential habitat for federal or state listed threatened or endangered species of plants, invertebrates, wildlife, or fish?	X	
Is the wetland a dedicated or protected Registered State Natural Area or Area of Critical Environmental Concern, State Natural Heritage Area, Federal Research Natural Area, Federal Research Natural Area, or a Nature Conservancy Preserve?		X
Is the wetland of regional or national significance for migratory birds?		X
Is the wetland protected in a local wetland conservation plan, local comprehensive plan or as a Goal 5 or Goal 17 resource?		X
Is the wetland a designated State Outstanding Resource Water?		X
Is the wetland a protected area in a recognized federal, state, or local management plan?		X
Is the wetland a protected mitigation site for removal fill permit, federal 404-fill permit, or enforcement action?		X
Is the wetland a restoration or protected area included in the wetland conservation program administered by the Agricultural Stabilization and Conservation Service?		X
Is the wetland considered rare or unique in Oregon?		X

Wetland Code: W2	YES	NO
Does the wetland contain threatened, endangered or sensitive species of wildlife, plants, invertebrates, or fish?		X
Is the wetland designated as critical habitat or essential habitat for federal or state listed threatened or endangered species of plants, invertebrates, wildlife, or fish?		X
Is the wetland a dedicated or protected Registered State Natural Area or Area of Critical Environmental Concern, State Natural Heritage Area, Federal Research Natural Area, Federal Research Natural Area, or a Nature Conservancy Preserve?		X
Is the wetland of regional or national significance for migratory birds?		X
Is the wetland protected in a local wetland conservation plan, local comprehensive plan or as a Goal 5 or Goal 17 resource?		X
Is the wetland a designated State Outstanding Resource Water?		X
Is the wetland a protected area in a recognized federal, state, or local management plan?		X
Is the wetland a protected mitigation site for removal fill permit, federal 404-fill permit, or enforcement action?		X
Is the wetland a restoration or protected area included in the wetland conservation program administered by the Agricultural Stabilization and Conservation Service?		X
Is the wetland considered rare or unique in Oregon?		X

Wetland Code: W3	YES	NO
Does the wetland contain threatened, endangered or sensitive species of wildlife, plants, invertebrates, or fish?		X
Is the wetland designated as critical habitat or essential habitat for federal or state listed threatened or endangered species of plants, invertebrates, wildlife, or fish?		X
Is the wetland a dedicated or protected Registered State Natural Area or Area of Critical Environmental Concern, State Natural Heritage Area, Federal Research Natural Area, Federal Research Natural Area, or a Nature Conservancy Preserve?		X
Is the wetland of regional or national significance for migratory birds?		X
Is the wetland protected in a local wetland conservation plan, local comprehensive plan or as a Goal 5 or Goal 17 resource?		X
Is the wetland a designated State Outstanding Resource Water?		X
Is the wetland a protected area in a recognized federal, state, or local management plan?		X
Is the wetland a protected mitigation site for removal fill permit, federal 404-fill permit, or enforcement action?		X
Is the wetland a restoration or protected area included in the wetland conservation program administered by the Agricultural Stabilization and Conservation Service?		X
Is the wetland considered rare or unique in Oregon?		X

Wetland Code: W4	YES	NO
Does the wetland contain threatened, endangered or sensitive species of wildlife, plants, invertebrates, or fish?		X
Is the wetland designated as critical habitat or essential habitat for federal or state listed threatened or endangered species of plants, invertebrates, wildlife, or fish?		X
Is the wetland a dedicated or protected Registered State Natural Area or Area of Critical Environmental Concern, State Natural Heritage Area, Federal Research Natural Area, Federal Research Natural Area, or a Nature Conservancy Preserve?		X
Is the wetland of regional or national significance for migratory birds?		X
Is the wetland protected in a local wetland conservation plan, local comprehensive plan or as a Goal 5 or Goal 17 resource?		X
Is the wetland a designated State Outstanding Resource Water?		X
Is the wetland a protected area in a recognized federal, state, or local management plan?		X
Is the wetland a protected mitigation site for removal fill permit, federal 404-fill permit, or enforcement action?		X
Is the wetland a restoration or protected area included in the wetland conservation program administered by the Agricultural Stabilization and Conservation Service?		X
Is the wetland considered rare or unique in Oregon?		x

Wetland Code: W5	YES	NO
Does the wetland contain threatened, endangered or sensitive species of wildlife, plants, invertebrates, or fish?		X
Is the wetland designated as critical habitat or essential habitat for federal or state listed threatened or endangered species of plants, invertebrates, wildlife, or fish?		X
Is the wetland a dedicated or protected Registered State Natural Area or Area of Critical Environmental Concern, State Natural Heritage Area, Federal Research Natural Area, Federal Research Natural Area, or a Nature Conservancy Preserve?		X
Is the wetland of regional or national significance for migratory birds?		X
Is the wetland protected in a local wetland conservation plan, local comprehensive plan or as a Goal 5 or Goal 17 resource?		X
Is the wetland a designated State Outstanding Resource Water?		X
Is the wetland a protected area in a recognized federal, state, or local management plan?		X
Is the wetland a protected mitigation site for removal fill permit, federal 404-fill permit, or enforcement action?		X
Is the wetland a restoration or protected area included in the wetland conservation program administered by the Agricultural Stabilization and Conservation Service?		X
Is the wetland considered rare or unique in Oregon?		X

Wetland Code: W6	YES	NO
Does the wetland contain threatened, endangered or sensitive species of wildlife, plants, invertebrates, or fish?		X
Is the wetland designated as critical habitat or essential habitat for federal or state listed threatened or endangered species of plants, invertebrates, wildlife, or fish?		X
Is the wetland a dedicated or protected Registered State Natural Area or Area of Critical Environmental Concern, State Natural Heritage Area, Federal Research Natural Area, Federal Research Natural Area, or a Nature Conservancy Preserve?		X
Is the wetland of regional or national significance for migratory birds?		X
Is the wetland protected in a local wetland conservation plan, local comprehensive plan or as a Goal 5 or Goal 17 resource?		X
Is the wetland a designated State Outstanding Resource Water?		X
Is the wetland a protected area in a recognized federal, state, or local management plan?		X
Is the wetland a protected mitigation site for removal fill permit, federal 404-fill permit, or enforcement action?		X
Is the wetland a restoration or protected area included in the wetland conservation program administered by the Agricultural Stabilization and Conservation Service?		X
Is the wetland considered rare or unique in Oregon?	X (portion)	

Wetland Code: W7	YES	NO
Does the wetland contain threatened, endangered or sensitive species of wildlife, plants, invertebrates, or fish?		X
Is the wetland designated as critical habitat or essential habitat for federal or state listed threatened or endangered species of plants, invertebrates, wildlife, or fish?		X
Is the wetland a dedicated or protected Registered State Natural Area or Area of Critical Environmental Concern, State Natural Heritage Area, Federal Research Natural Area, Federal Research Natural Area, or a Nature Conservancy Preserve?		X
Is the wetland of regional or national significance for migratory birds?		X
Is the wetland protected in a local wetland conservation plan, local comprehensive plan or as a Goal 5 or Goal 17 resource?		X
Is the wetland a designated State Outstanding Resource Water?		X
Is the wetland a protected area in a recognized federal, state, or local management plan?		X
Is the wetland a protected mitigation site for removal fill permit, federal 404-fill permit, or enforcement action?		X
Is the wetland a restoration or protected area included in the wetland conservation program administered by the Agricultural Stabilization and Conservation Service?		X
Is the wetland considered rare or unique in Oregon?		X

Wetland Code: W8	YES	NO
Does the wetland contain threatened, endangered or sensitive species of wildlife, plants, invertebrates, or fish?		X
Is the wetland designated as critical habitat or essential habitat for federal or state listed threatened or endangered species of plants, invertebrates, wildlife, or fish?	X	
Is the wetland a dedicated or protected Registered State Natural Area or Area of Critical Environmental Concern, State Natural Heritage Area, Federal Research Natural Area, Federal Research Natural Area, or a Nature Conservancy Preserve?		X
Is the wetland of regional or national significance for migratory birds?		X
Is the wetland protected in a local wetland conservation plan, local comprehensive plan or as a Goal 5 or Goal 17 resource?		X
Is the wetland a designated State Outstanding Resource Water?		X
Is the wetland a protected area in a recognized federal, state, or local management plan?		X
Is the wetland a protected mitigation site for removal fill permit, federal 404-fill permit, or enforcement action?		X
Is the wetland a restoration or protected area included in the wetland conservation program administered by the Agricultural Stabilization and Conservation Service?		X
Is the wetland considered rare or unique in Oregon?		X

APPENDIX F. LOCALLY SIGNIFICANT WETLANDS

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Locally Significant Wetlands

Wetlands that score a 'Yes' in any of the following categories do NOT proceed to section B.

A.

W1	YES	NO
Wetlands artificially created entirely from upland that are: a. Created for the purpose of controlling, storing, or manipulating stormwater b. Active surface mining or active log ponds c. Ditches without free & open connection to water of the states and w/o fish d. < 1 acre and unintentionally created from irrigation leak or construction activity e. Created for the purpose of waste water treatment, cranberry production, stock watering, settling of sediment, cooling industrial waste, or as a golf course hazard		X
Documented as being contaminated by hazardous substances, materials or wastes		X

Wetlands that meet One or More of the following criteria are LSW's

B.

W1	YES	NO
Wetlands that score the highest rank (stated below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: a. Diverse wildlife habitat b. Intact fish habitat c. Intact water quality, or d. Intact hydrologic connection	X	
Wetland's water quality function is rated "intact" or "impacted or degraded", and it occurs within ¼ mile of a water quality-limited stream listed by DEQ		X
Contain one or more rare/uncommon wetland plant communities in Oregon		X
Inhabited by any species listed by the federal or state government as a sensitive, threatened, or endangered species in Oregon (unless consultation w/appropriate agency deems the site not important for the maintenance of the species)	X	
Wetland's fish habitat function is rated as "intact" or "impacted or degraded" using OFWAM, and it has a direct surface water connection to a stream segment that is mapped by ODFW as habitat for "indigenous anadromous salmonids".	X	
Optional criteria: Wetland represents a locally unique plant community		
Optional criteria: Wetland rates in highest category for education potential (it must be publicly owned to rank that in OFWAM) and there is documented use for educational purposes by a school or organization		

Wetlands that score a 'Yes' in any of the following categories do NOT proceed to section B.

A.

W2	YES	NO
Wetlands artificially created entirely from upland that are: a. Created for the purpose of controlling, storing, or manipulating stormwater b. Active surface mining or active log ponds c. Ditches without free & open connection to water of the states and w/o fish d. < 1 acre and unintentionally created from irrigation leak or construction activity e. Created for the purpose of waste water treatment, cranberry production, stock watering, settling of sediment, cooling industrial waste, or as a golf course hazard		X
Documented as being contaminated by hazardous substances, materials or wastes		X

Wetlands that meet One or More of the following criteria are LSW's

B.

W2	YES	NO
Wetlands that score the highest rank (stated below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: a. Diverse wildlife habitat b. Intact fish habitat c. Intact water quality, or d. Intact hydrologic connection	X	
Wetland's water quality function is rated "intact" or "impacted or degraded", and it occurs within ¼ mile of a water quality-limited stream listed by DEQ		X
Contain one or more rare/uncommon wetland plant communities in Oregon		X
Inhabited by any species listed by the federal or state government as a sensitive, threatened, or endangered species in Oregon (unless consultation w/appropriate agency deems the site not important for the maintenance of the species)		X
Wetland's fish habitat function is rated as "intact" or "impacted or degraded" using OFWAM, and it has a direct surface water connection to a stream segment that is mapped by ODFW as habitat for "indigenous anadromous salmonids".	X	
Optional criteria: Wetland represents a locally unique plant community		
Optional criteria: Wetland rates in highest category for education potential (it must be publicly owned to rank that in OFWAM) and there is documented use for educational purposes by a school or organization		

Wetlands that score a 'Yes' in any of the following categories do NOT proceed to section B.

A.

W3	YES	NO
Wetlands artificially created entirely from upland that are: a. Created for the purpose of controlling, storing, or manipulating stormwater b. Active surface mining or active log ponds c. Ditches without free & open connection to water of the states and w/o fish d. < 1 acre and unintentionally created from irrigation leak or construction activity e. Created for the purpose of waste water treatment, cranberry production, stock watering, settling of sediment, cooling industrial waste, or as a golf course hazard		X
Documented as being contaminated by hazardous substances, materials or wastes		X

Wetlands that meet One or More of the following criteria are LSW's

B.

W3	YES	NO
Wetlands that score the highest rank (stated below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: a. Diverse wildlife habitat b. Intact fish habitat c. Intact water quality, or d. Intact hydrologic connection	X	
Wetland's water quality function is rated "intact" or "impacted or degraded", and it occurs within ¼ mile of a water quality-limited stream listed by DEQ		X
Contain one or more rare/uncommon wetland plant communities in Oregon		X
Inhabited by any species listed by the federal or state government as a sensitive, threatened, or endangered species in Oregon (unless consultation w/appropriate agency deems the site not important for the maintenance of the species)		X
Wetland's fish habitat function is rated as "intact" or "impacted or degraded" using OFWAM, and it has a direct surface water connection to a stream segment that is mapped by ODFW as habitat for "indigenous anadromous salmonids".		X
Optional criteria: Wetland represents a locally unique plant community		
Optional criteria: Wetland rates in highest category for education potential (it must be publicly owned to rank that in OFWAM) and there is documented use for educational purposes by a school or organization		

Wetlands that score a 'Yes' in any of the following categories do NOT proceed to section B.

A.

W4	YES	NO
Wetlands artificially created entirely from upland that are: a. Created for the purpose of controlling, storing, or manipulating stormwater b. Active surface mining or active log ponds c. Ditches without free & open connection to water of the states and w/o fish d. < 1 acre and unintentionally created from irrigation leak or construction activity e. Created for the purpose of waste water treatment, cranberry production, stock watering, settling of sediment, cooling industrial waste, or as a golf course hazard		X
Documented as being contaminated by hazardous substances, materials or wastes		X

Wetlands that meet One or More of the following criteria are LSW's

B.

W4	YES	NO
Wetlands that score the highest rank (stated below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: a. Diverse wildlife habitat b. Intact fish habitat c. Intact water quality, or d. Intact hydrologic connection	X	
Wetland's water quality function is rated "intact" or "impacted or degraded", and it occurs within ¼ mile of a water quality-limited stream listed by DEQ		X
Contain one or more rare/uncommon wetland plant communities in Oregon		X
Inhabited by any species listed by the federal or state government as a sensitive, threatened, or endangered species in Oregon (unless consultation w/appropriate agency deems the site not important for the maintenance of the species)		X
Wetland's fish habitat function is rated as "intact" or "impacted or degraded" using OFWAM, and it has a direct surface water connection to a stream segment that is mapped by ODFW as habitat for "indigenous anadromous salmonids".		X
Optional criteria: Wetland represents a locally unique plant community		
Optional criteria: Wetland rates in highest category for education potential (it must be publicly owned to rank that in OFWAM) and there is documented use for educational purposes by a school or organization		

Wetlands that score a 'Yes' in any of the following categories do NOT proceed to section B.

A.

W5	YES	NO
Wetlands artificially created entirely from upland that are: a. Created for the purpose of controlling, storing, or manipulating stormwater b. Active surface mining or active log ponds c. Ditches without free & open connection to water of the states and w/o fish d. < 1 acre and unintentionally created from irrigation leak or construction activity e. Created for the purpose of waste water treatment, cranberry production, stock watering, settling of sediment, cooling industrial waste, or as a golf course hazard		X
Documented as being contaminated by hazardous substances, materials or wastes		X

Wetlands that meet One or More of the following criteria are LSW's

B.

W5	YES	NO
Wetlands that score the highest rank (stated below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: a. Diverse wildlife habitat b. Intact fish habitat c. Intact water quality, or d. Intact hydrologic connection	X	
Wetland's water quality function is rated "intact" or "impacted or degraded", and it occurs within ¼ mile of a water quality-limited stream listed by DEQ		X
Contain one or more rare/uncommon wetland plant communities in Oregon		X
Inhabited by any species listed by the federal or state government as a sensitive, threatened, or endangered species in Oregon (unless consultation w/appropriate agency deems the site not important for the maintenance of the species)		X
Wetland's fish habitat function is rated as "intact" or "impacted or degraded" using OFWAM, and it has a direct surface water connection to a stream segment that is mapped by ODFW as habitat for "indigenous anadromous salmonids".		X
Optional criteria: Wetland represents a locally unique plant community		
Optional criteria: Wetland rates in highest category for education potential (it must be publicly owned to rank that in OFWAM) and there is documented use for educational purposes by a school or organization		

Wetlands that score a 'Yes' in any of the following categories do NOT proceed to section B.

A.

W6	YES	NO
Wetlands artificially created entirely from upland that are: a. Created for the purpose of controlling, storing, or manipulating stormwater b. Active surface mining or active log ponds c. Ditches without free & open connection to water of the states and w/o fish d. < 1 acre and unintentionally created from irrigation leak or construction activity e. Created for the purpose of waste water treatment, cranberry production, stock watering, settling of sediment, cooling industrial waste, or as a golf course hazard		X
Documented as being contaminated by hazardous substances, materials or wastes		X

Wetlands that meet One or More of the following criteria are LSW's

B.

W6	YES	NO
Wetlands that score the highest rank (stated in italics below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: a. Diverse wildlife habitat b. Intact fish habitat c. Intact water quality, or d. Intact hydrologic connection	X	
Wetland's water quality function is rated "intact" or "impacted or degraded", and it occurs within ¼ mile of a water quality-limited stream listed by DEQ		X
Contain one or more rare/uncommon wetland plant communities in Oregon	X	
Inhabited by any species listed by the federal or state government as a sensitive, threatened, or endangered species in Oregon (unless consultation w/appropriate agency deems the site not important for the maintenance of the species)		X
Wetland's fish habitat function is rated as "intact" or "impacted or degraded" using OFWAM, and it has a direct surface water connection to a stream segment that is mapped by ODFW as habitat for "indigenous anadromous salmonids".	X	
Optional criteria: Wetland represents a locally unique plant community		
Optional criteria: Wetland rates in highest category for education potential (it must be publicly owned to rank that in OFWAM) and there is documented use for educational purposes by a school or organization		

Wetlands that score a 'Yes' in any of the following categories do NOT proceed to section B.

A.

W7	YES	NO
Wetlands artificially created entirely from upland that are: a. Created for the purpose of controlling, storing, or manipulating stormwater b. Active surface mining or active log ponds c. Ditches without free & open connection to water of the states and w/o fish d. < 1 acre and unintentionally created from irrigation leak or construction activity e. Created for the purpose of waste water treatment, cranberry production, stock watering, settling of sediment, cooling industrial waste, or as a golf course hazard		X
Documented as being contaminated by hazardous substances, materials or wastes		X

Wetlands that meet One or More of the following criteria are LSW's

B.

W7	YES	NO
Wetlands that score the highest rank (stated in italics below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: a. Diverse wildlife habitat b. Intact fish habitat c. Intact water quality, or d. Intact hydrologic connection	X	
Wetland's water quality function is rated "intact" or "impacted or degraded", and it occurs within ¼ mile of a water quality-limited stream listed by DEQ		X
Contain one or more rare/uncommon wetland plant communities in Oregon		X
Inhabited by any species listed by the federal or state government as a sensitive, threatened, or endangered species in Oregon (unless consultation w/appropriate agency deems the site not important for the maintenance of the species)		X
Wetland's fish habitat function is rated as "intact" or "impacted or degraded" using OFWAM, and it has a direct surface water connection to a stream segment that is mapped by ODFW as habitat for "indigenous anadromous salmonids".		X
Optional criteria: Wetland represents a locally unique plant community		
Optional criteria: Wetland rates in highest category for education potential (it must be publicly owned to rank that in OFWAM) and there is documented use for educational purposes by a school or organization		

Wetlands that score a 'Yes' in any of the following categories do NOT proceed to section B.

A.

W8	YES	NO
Wetlands artificially created entirely from upland that are: a. Created for the purpose of controlling, storing, or manipulating stormwater b. Active surface mining or active log ponds c. Ditches without free & open connection to water of the states and w/o fish d. < 1 acre and unintentionally created from irrigation leak or construction activity e. Created for the purpose of waste water treatment, cranberry production, stock watering, settling of sediment, cooling industrial waste, or as a golf course hazard		X
Documented as being contaminated by hazardous substances, materials or wastes		X

Wetlands that meet One or More of the following criteria are LSW's

B.

W8	YES	NO
Wetlands that score the highest rank (stated in italics below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: a. Diverse wildlife habitat b. Intact fish habitat c. Intact water quality, or d. Intact hydrologic connection	X	
Wetland's water quality function is rated "intact" or "impacted or degraded", and it occurs within ¼ mile of a water quality-limited stream listed by DEQ		X
Contain one or more rare/uncommon wetland plant communities in Oregon		X
Inhabited by any species listed by the federal or state government as a sensitive, threatened, or endangered species in Oregon (unless consultation w/appropriate agency deems the site not important for the maintenance of the species)	X	
Wetland's fish habitat function is rated as "intact" or "impacted or degraded" using OFWAM, and it has a direct surface water connection to a stream segment that is mapped by ODFW as habitat for "indigenous anadromous salmonids".	X	
Optional criteria: Wetland represents a locally unique plant community		
Optional criteria: Wetland rates in highest category for education potential (it must be publicly owned to rank that in OFWAM) and there is documented use for educational purposes by a school or organization		

APPENDIX G. GEARHART SOILS CHART

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Map Symbol	Map Unit Name	Component	Percent of Map Unit	Landform	Hydric Rating
5A	Bergsvik mucky peat, 0% to 1% slopes	Bergsvik	90%	Depressions	Yes
		Psammaquents	4%	Depressions	Yes
		Bergsvik; sandy surface	3%	Depressions	Yes
		Histosols	3%	Depressions	Yes
6A	Brallier mucky peat, 0% to 1% slopes	Brallier	85%	Flood plains	Yes
		Brallier mineral soil substratum	8%	Flood plains	Yes
		Aquents	7%	Flood plains	Yes
8A	Brenner silt loam, 0% to 3% slopes	Brenner	85%	Flood plains	Yes
		Brenner silt loam substratum	7%	Flood plains	Yes
11A	Coquille-Clatsop complex, 0% to 1% slopes	Coquille	60%	Flood plains	Yes
		Clatsop	30%	Flood plains	Yes
		Coquille, very gravelly	3%	Flood plains	Yes
		Histosols	3%	Flood plains	Yes
		Coquille, sandy substratum	2%	Flood plains	Yes
		Psammaquents	2%	Flood plains	Yes
19C	Gearhart fine sandy loam 3% to 15% slopes	Gearhart	85%	Dunes	No
		Aquepts	7%	Depressions	Yes
19D	Gearhart fine sandy loam 15% to 30% slopes	Gearhart	85%	Dunes	No
70C	Waldport fine sand 3% to 15% slopes	Waldport	85%	Dunes	No
		Psammaquents	7%	Interdunes	Yes
70D	Waldport fine sand 15% to 30% slopes	Waldport	85%	Dunes	No
		Psammaquents	8%	Interdunes	Yes
72A	Warrenton fine sandy loam 0% to 3% slopes	Warrenton	85%	Interdunes	Yes

APPENDIX H. WETLANDS MAPS

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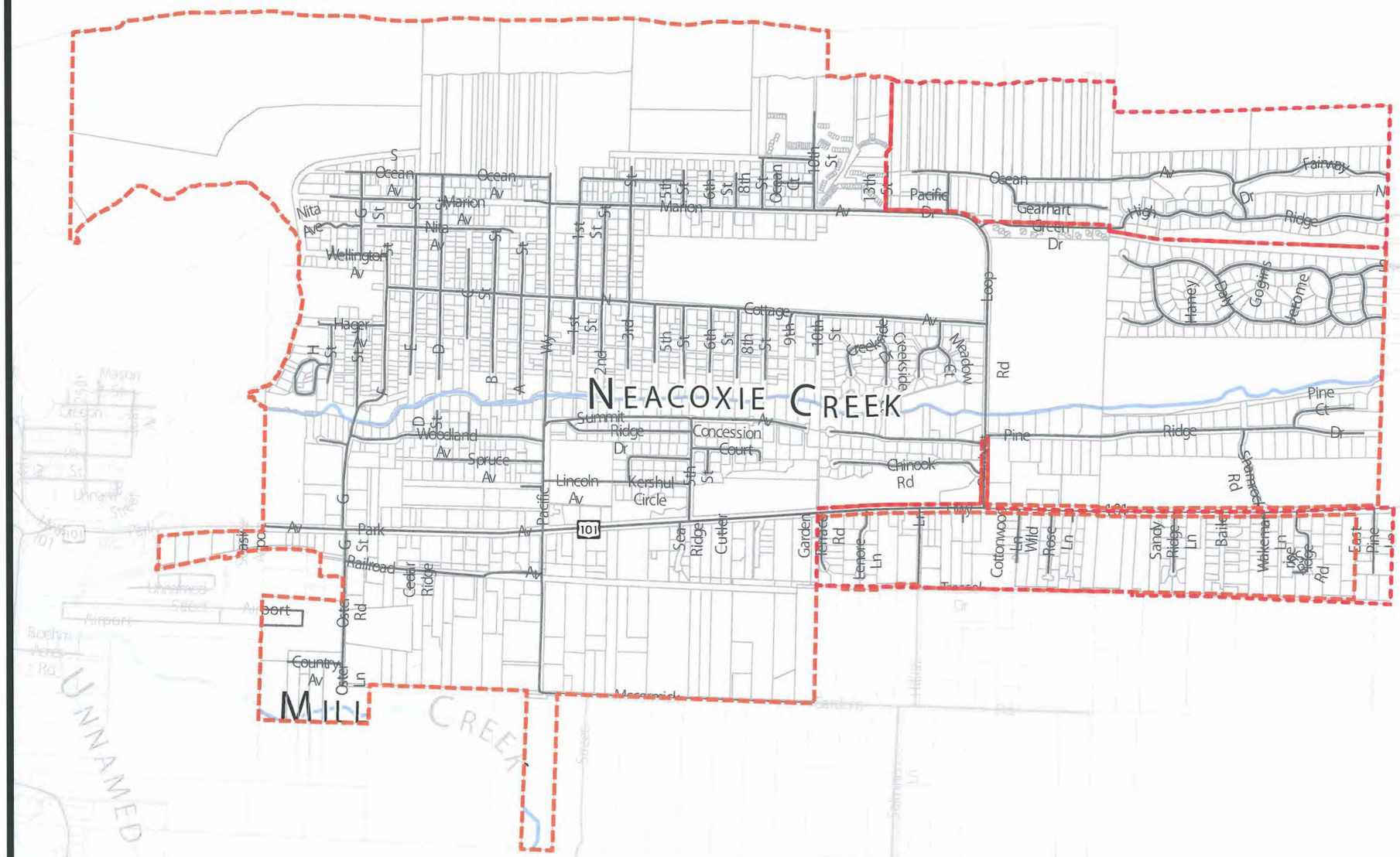
City of Gearhart

Local Wetlands Inventory (LWI)

Title: Study Area — Last Edited: September 2011



Study Area

- City Limits
- Urban Growth Boundary (UGB)

Roads / Rivers / Streams / Tax Lots

THE ENTIRE STUDY AREA IS LOCATED WITHIN THE NECANICUM WATERSHED

Map Index and Study Area

Map 1	Map 2	Map 3	Map 4	Map 5	Map 6
Map 7	Map 8	Map 9	Map 10	Map 11	Map 12
Map 13	Map 14	Map 15			

Information shown on this map is for planning purposes, represents the conditions that exist at the map date, and is subject to change. The location and extent of wetlands and other waters is approximate. There may be unmapped wetlands and other waters present that are subject to regulation. A current Oregon Department of State Lands (DSL) -approved wetland delineation is required for state removal-fill permits. You are advised to contact the Oregon Department of State Lands and the U.S. Army Corps of Engineers (ACOE) with any regulatory questions.

0 — 0.25 — 0.5 Miles

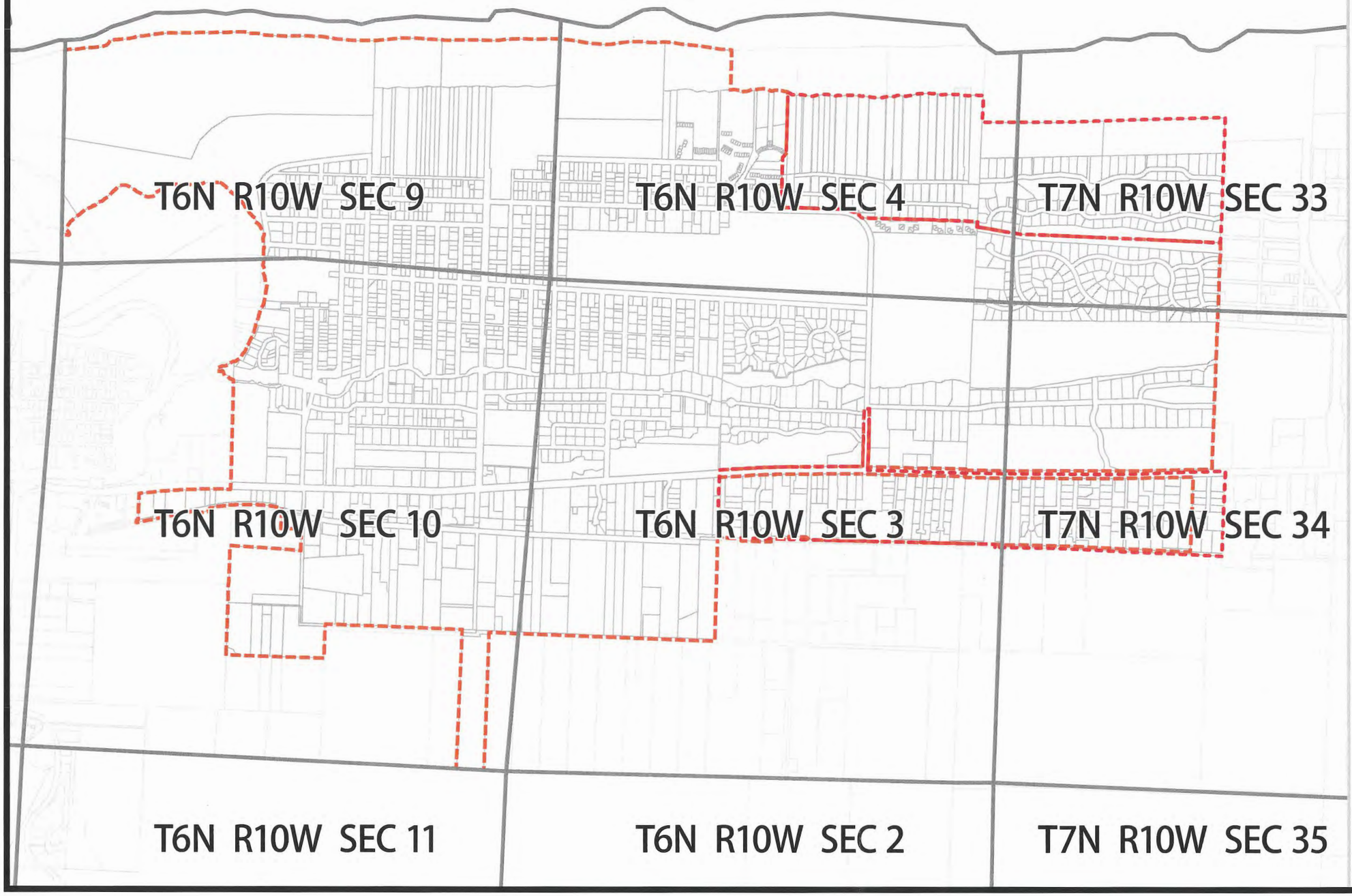
Columbia River Estuary Study Taskforce

City of Gearhart

Local Wetlands Inventory (LWI)

Title: PLSS

Last edited: September 2011



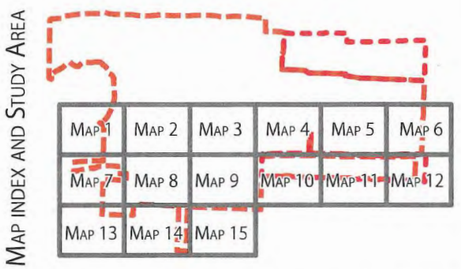
Tax Lots

Study Area

- City Limits
- Urban Growth Boundary (UGB)

THE ENTIRE STUDY AREA IS LOCATED WITHIN THE NECANICUM WATERSHED

Map Index and Study Area



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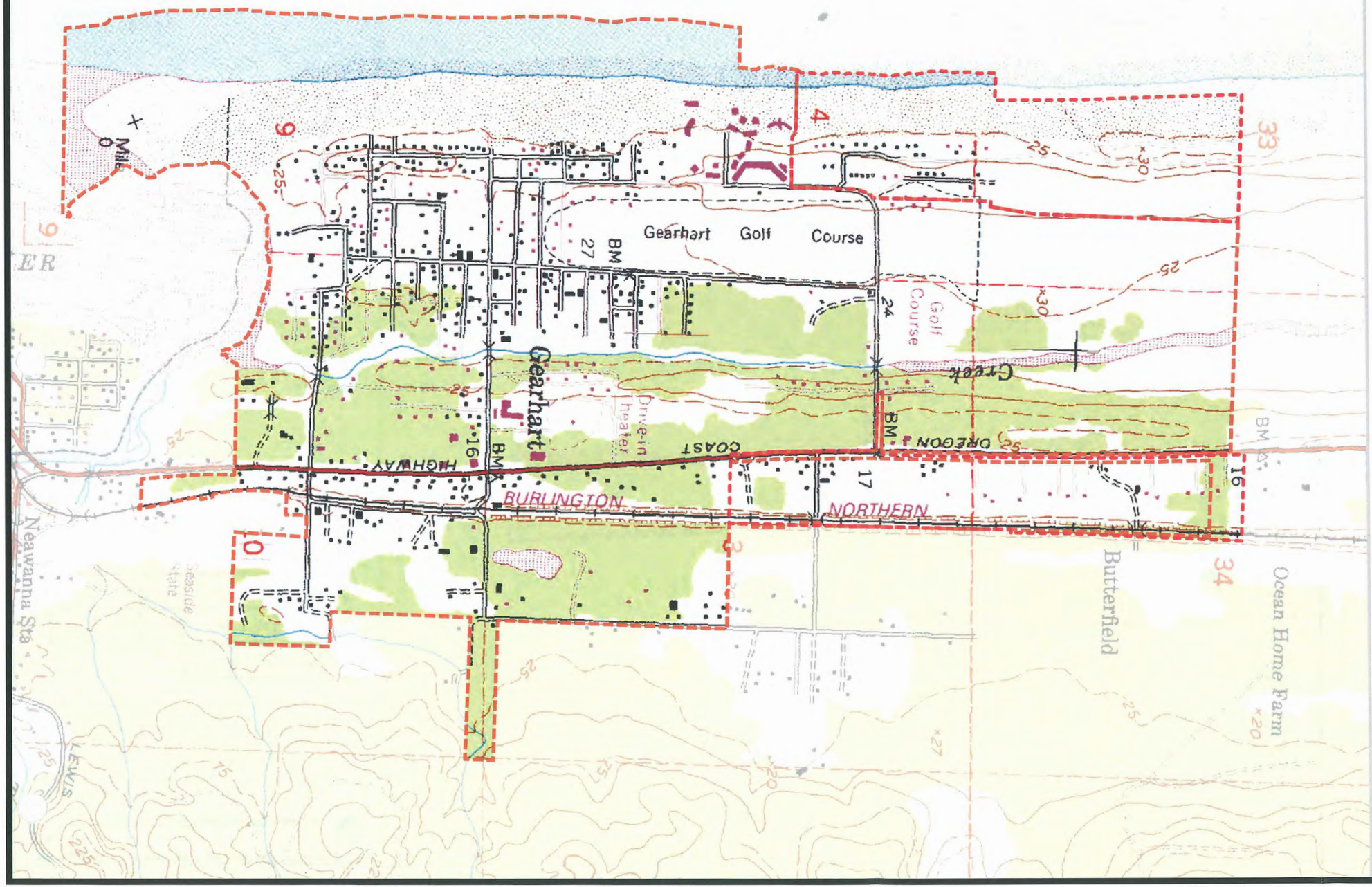
Columbia River Estuary Study Taskforce

City of Gearhart

Local Wetlands Inventory (LWI)

Title: USGS Quad — Last Edited: September 2011

Study Area
- City Limits
- Urban Growth Boundary (UGB)



THE ENTIRE STUDY AREA IS LOCATED WITHIN THE NECANICUM WATERSHED

Map Index and Study Area

Map 1	Map 2	Map 3	Map 4	Map 5	Map 6
Map 7	Map 8	Map 9	Map 10	Map 11	Map 12
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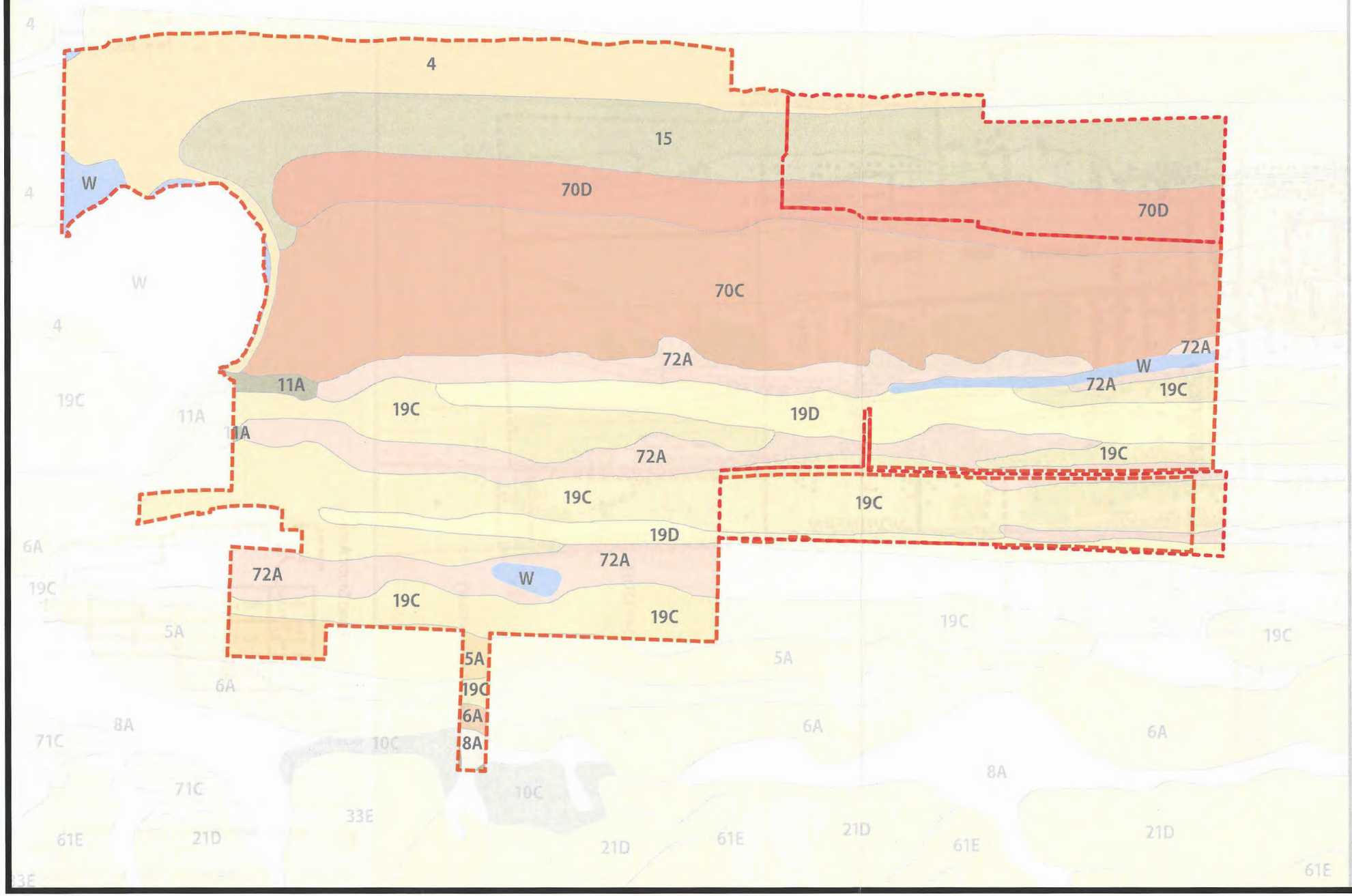
Columbia River Estuary Study Taskforce

City of Gearhart

Local Wetlands Inventory (LWI)

Title: NRCS Soils LAST EDITED: SEPTEMBER 2011



Study Area

- City Limits
- Urban Growth Boundary (UGB)

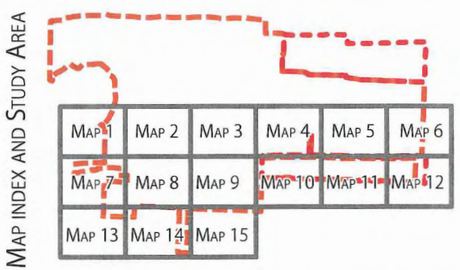
Natural Resources Conservation Service Soil Types

5A	Bergsvik Mucky Peat, 0% - 1% Slopes*
6A	Brallier Mucky Peat, 0% - 1% Slopes*
8A	Brenner Silt Loam, 0% - 3% Slopes*
10C	Chitwood Silt Loam, 0% - 7% Slopes
11A	Coquille-Clatsop Complex, 0% - 1% Slopes*
19C	Gearhart Fine Sandy Loam, 3% - 15% Slopes
19D	Gearhart Fine Sandy Loam, 15% - 30% Slopes
21D	Grindbrook Silt Loam, Bedrock Substratum, 3% - 30% Slopes
33E	Klootchie-Necanicum Complex, 30% - 60%
61E	Templeton-Ecola Silt Loams, 30% - 60% Slopes
70C	Waldport Fine Sand, 3% - 15% Slopes
70D	Waldport Fine Sand, 15% - 30% Slopes
71C	Walluski Silt Loam, 7% - 15% Slopes
72A	Warrenton Loamy Fine Sand, 0% - 3% Slopes*
4	Beaches*
15	Dune Land
W	Water

* = Hydric Soil

THE ENTIRE STUDY AREA IS LOCATED WITHIN THE NECANICUM WATERSHED

Map Index and Study Area



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Columbia River Estuary Study Taskforce

City of Gearhart

Local Wetlands Inventory (LWI)

Title: Local Wetlands LAST EDITED: SEPTEMBER 2011

- Roads
- Rivers / Streams
- Tax Lots

Study Area
- City Limits
- Urban Growth Boundary (UGB)

Local Wetlands Inventory Wetlands Group

W1 W2 W3 W4
W5 W6 W7 W8

Estuarine Wetland (EW)

Waterbody

WD 01-0506 DSL Wetland Delineation

THE ENTIRE STUDY AREA IS LOCATED WITHIN THE NECANICUM WATERSHED

Map Index and Study Area

Map 1	Map 2	Map 3	Map 4	Map 5	Map 6
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Columbia River Estuary Study Taskforce

City of Gearhart

Local Wetlands Inventory (LWI)

Title: 2010 Aerial LAST EDITED: SEPTEMBER 2011

Study Area

- City Limits
- Urban Growth Boundary (UGB)

THE ENTIRE STUDY AREA IS LOCATED WITHIN THE NECANICUM WATERSHED

Map Index and Study Area

Map 1	Map 2	Map 3	Map 4	Map 5	Map 6
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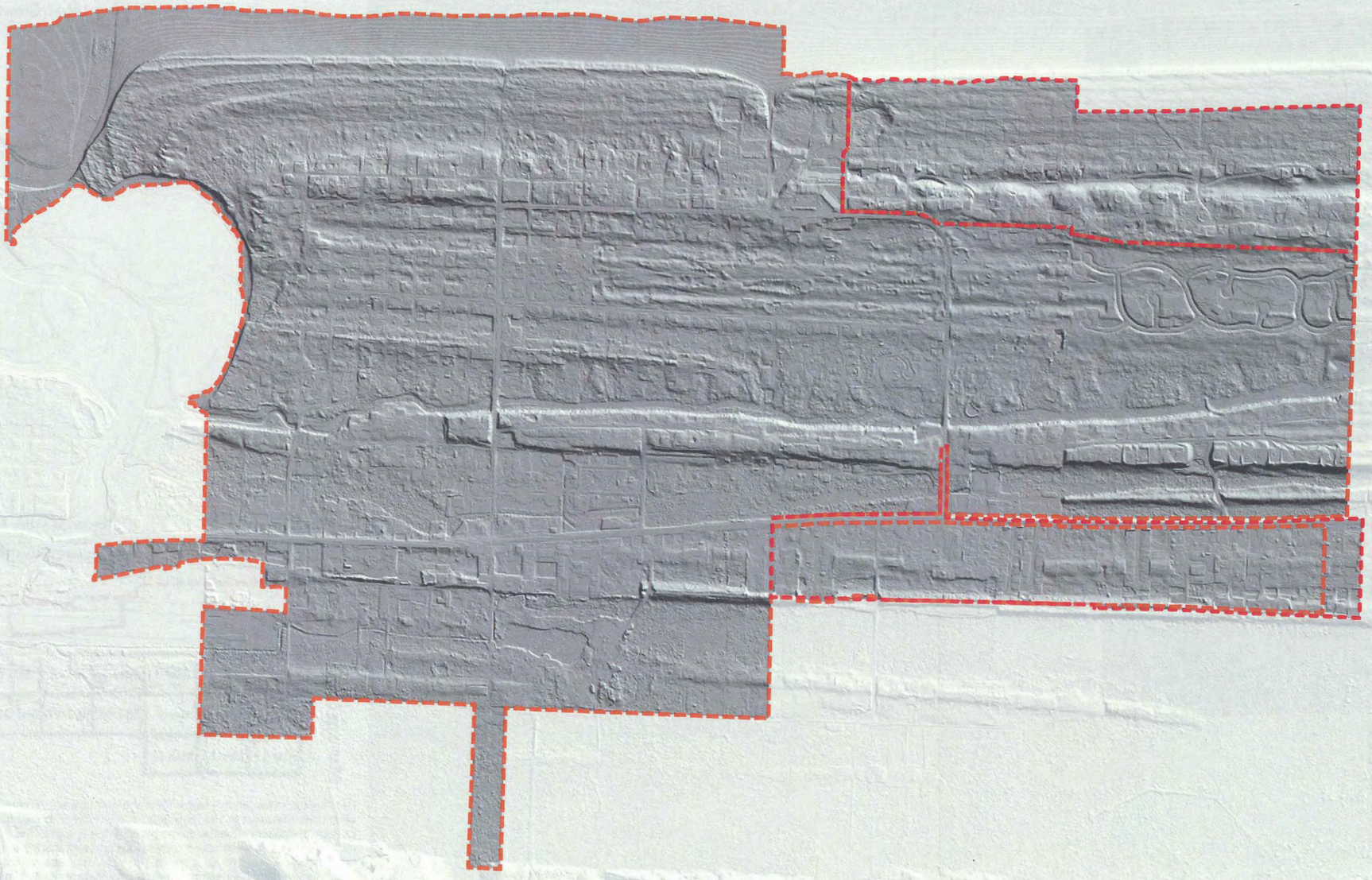
Columbia River Estuary Study Taskforce

City of Gearhart

Local Wetlands Inventory (LWI)

Title: LiDAR

Last Edited: September 2011

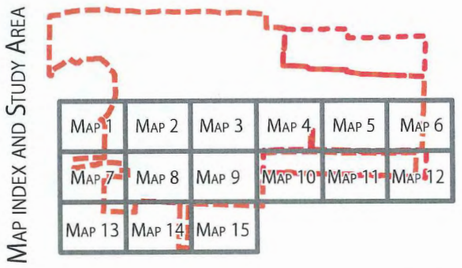


Study Area

- City Limits
- Urban Growth Boundary (UGB)

THE ENTIRE STUDY AREA IS LOCATED WITHIN THE NECANICUM WATERSHED

Map Index and Study Area



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Columbia River Estuary Study Taskforce

City of Gearhart

Local Wetlands Inventory (LWI)

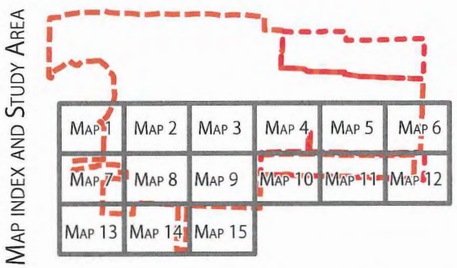
Title: Aerial + LiDAR LAST EDITED: SEPTEMBER 2011

Study Area

- City Limits
- Urban Growth Boundary (UGB)

THE ENTIRE STUDY AREA IS LOCATED WITHIN THE NECANICUM WATERSHED

Map Index and Study Area



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