

**CITY OF CORNELIUS**  
**NATURAL RESOURCE INVENTORY**



**ADOPTED DECEMBER 2, 2002 – ORDINANCE NO. 836**

**AMENDED JUNE 16, 2014 – ORDINANCE NO. 2014-13**

**THE CITY OF CORNELIUS, OREGON  
ORDINANCE NO. 836**

**AN ORDINANCE OF THE CITY OF CORNELIUS AMENDING THE  
COMPREHENSIVE PLAN TO INCLUDE THE NATURAL RESOURCES  
INVENTORY AND MAP.**

WHEREAS, the City of Cornelius Periodic Review Work Task 3 requires compliance with state environmental rules pursuant to Statewide Planning Goal 5 ; and

WHEREAS, Statewide Planning Goal 5 requires local governments to inventory, assess wetlands and determine significance, and inventory, assess riparian corridors and determine significance; and

WHEREAS, the City of Cornelius Community Development Department reviewed and analyzed the proposal for compliance with the Comprehensive Plan and Chapter 11 of the City Code (also known as the Development & Zoning Code) and recommended to the Planning Commission to recommend approval of the request to City Council; and

WHEREAS, the City of Cornelius provided public notice consistent with Section 11.10.33, Development and Zoning Code (Chapter 11 of the City Code) 20 days prior to the Planning Commission Hearing held on October 22, 2002; and

WHEREAS, the City of Cornelius Community Development Department further reviewed the complete application and analyzed the proposal for compliance with the Statewide Planning Goals and Oregon Administrative Rules; and

WHEREAS, the City of Cornelius Planning Commission has conducted an analysis, including review of reports prepared by the City Community Development Department, and has further considered the matter in a public hearing duly noticed; and

WHEREAS, the City of Cornelius Planning Commission held a public hearing on the proposed amendment adopting the Natural Resources Inventory and Map as part of the Comprehensive Plan on October 22, 2002, at the Old Cornelius Fire Hall; and based on the staff report and public testimony received, the Planning Commission adopted by motion to recommend to City Council the Comprehensive Plan amendment for final adoption; and

WHEREAS, the City Council finds the proposed Comprehensive Plan Amendment to be in compliance with the City's Comprehensive Plan, the City's Development & Zoning Code, the Statewide Planning Goals and Oregon Administrative Rules; as set forth in the Staff Report of the Planning Commission and the Community Development Department, attached hereto as Exhibit 1; and

WHEREAS, the City of Cornelius, after providing the required notices, held a public hearing on December 2, 2002, to review the record of the Planning Commission, and to hear and consider additional evidence and testimony on the matter.

**NOW THEREFORE THE CITY OF CORNELIUS ORDAINS AS FOLLOWS:**

Section 1. Pursuant to Section 11.30.80 of the Cornelius Code, the Cornelius Comprehensive Plan is amended to adopt the Natural Resources Inventory and Map Exhibit "C" attached hereto.

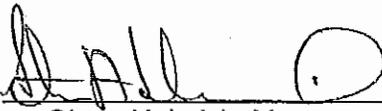
Section 2. The Appendix of the Comprehensive Plan is hereby amended to include the Cornelius Natural Resources Inventory and Map as Appendix L.

**SUBMITTED** to the Cornelius City Council and read into the record at a regularly scheduled meeting thereof on the 2nd day of December 2002, and read for a second time by title only this same day.

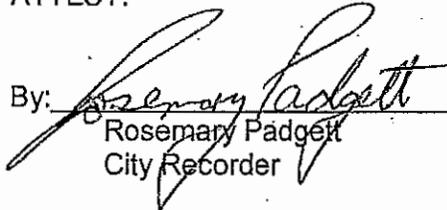
**ENACTED** this the 2nd day of December 2002, by the City Council by the following votes:

YEAS 4

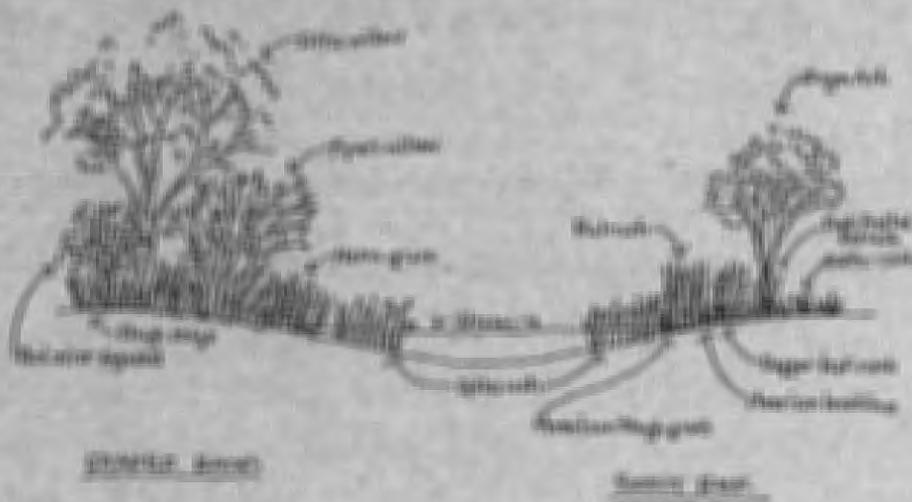
NAYS 0

By:   
Steve Heinrich, Mayor

ATTEST:

By:   
Rosemary Padgett  
City Recorder

# CITY OF CORNELIUS NATURAL RESOURCES INVENTORY



Adopted by City Council December 2, 2002  
Ordinance No. 836

# TABLE OF CONTENTS

<u>SUBJECT</u>	<u>PAGES</u>
INTRODUCTION/INVENTORY OVERVIEW	1 - 2
AREA DESCRIPTION & CHARACTERISTICS	2 - 4
<u>WETLANDS</u>	
NARRATIVE - DATA	4 - 9
WETLAND FINDINGS	9 - 11
HYDRIC SOILS MAP	APPENDIX A
OFWAM WORKSHEETS	APPENDIX B
WETLAND SITE MAPS	APPENDIX C
<u>RIPARIAN CORRIDOR</u>	
NARRATIVE - DATA	12 - 16
RIPARIAN FINDINGS	16 - 19
WATERMASTER RECORDS	APPENDIX D
RIPARIAN SUMMARY/ASSESSMENT	APPENDIX E
RIPARIAN CORRIDOR MAPS	APPENDIX H
<u>FISH &amp; WILDLIFE HABITAT</u>	
NARRATIVE - DATA	20 - 24
FISH & WILDLIFE HABITAT FINDINGS	24 - 26
HABITAT DOCUMENTATION LETTERS	APPENDIX F
UNNAMED STREAM/DRAINAGE MAPS	APPENDIX G
METRO HABITAT MAPS	APPENDIX I
<u>NATURAL RESOURCES SUMMARY</u>	27 - 28
<u>DEFINITIONS</u>	29

## INTRODUCTION

The City of Cornelius and its Urban Growth Boundary (UGB) is located in the Tualatin River Valley surrounded by prime agricultural lands in Washington County. The City is approximately 1168 acres in size, not quite 2 square miles. The Tualatin River slowly meanders along a portion of the southern City boundary. There are many neighboring communities, businesses, farmers, and agencies upstream and downstream that rely on the Tualatin River and its tributaries (i.e. Council Creek) for their livelihood, recreation and existence. The population of Cornelius in the year 2000 was 9,700. The wetlands and riparian areas associated with the Tualatin River and Council Creek provide benefits to the City of Cornelius and its neighbors by enhancing water quality, reducing erosion control, moderating water temperatures, providing flood control, and providing fish and wildlife habitat.

## INVENTORY OVERVIEW

State Planning Goal 5 requires all jurisdictions to inventory their natural resources and develop conservation and protection plans for them. Goal 5 specifically identifies twelve (12) resources to be inventoried, of these twelve (12) resources listed in Goal 5, three (3) appear to exist in Cornelius. They are wetlands, riparian corridors and fish/wildlife habitat. This report documents the methods and results of the City of Cornelius's effort to inventory these three Goal 5 resources. The City conducted a Local Wetlands Inventory (LWI) identifying the significant wetlands and riparian areas. The functions and quality of the wetlands were assessed using the *Oregon Freshwater Wetlands Assessment Methodology* (Roth, 1996). Riparian Area assessments were conducted using the *Urban Riparian Inventory & Assessment Guide* (Pacific Habitat Services, 1998). Fish and wildlife habitat were inventoried through an approved process by the Oregon Department of Fish and Wildlife and Oregon Department of Land Conservation & Development. Goal 5 resources are required to be inventoried as identified in OAR 660-023-0030. This rule divides the process into the following four steps:

- Collect information about Goal 5 resource sites.
- Determine the adequacy of the information (includes location, quality and quantity of the resource).
- Determine the significance of resource sites.
- Adopt a list of significant resource sites.

Following this four step process the City inventoried wetlands, riparian areas and wildlife habitat in the City.

Wetlands are defined as: *those areas that are inundated or saturated by surface or ground water at a frequency or duration sufficient to support, and that under normal*

*circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions [OAR 141-086-0190(19)].*

Riparian Corridor is defined as: *a Goal 5 resource that includes the water areas, fish habitat, adjacent riparian areas, and wetlands within the riparian area boundary [OAR 660-023-0090(1)(c)].*

Riparian Area is defined as: *the area adjacent to a river, lake or stream, consisting of the area of transition from aquatic ecosystem to a terrestrial ecosystem. [OAR 660-023-0090(1)(b)].*

Fish Habitat is defined as: *those areas upon which fish depend to meet their requirements for spawning, rearing, food supply and migration.*

Wildlife Habitat is defined as: *An area upon which wildlife depend in order to meet their requirements for food, water, shelter, and reproduction. Examples include wildlife migration corridors, big game range, and nesting and roosting sites.*

## **AREA DESCRIPTION & CHARACTERISTICS**

The City of Cornelius lies in the Lower Willamette Drainage Basin as identified by the State Water Resources Department. It is more directly located in the Tualatin River and Dairy Creek Watersheds in the Tualatin River sub-basin in western Washington County between the Willamette River and the mountains of the Coast Range. The City is approximately 2 square miles confined by natural and political boundaries. The City is bordered on the north by Council Creek, the south by the main stem Tualatin River and its drainage system, the east by Jobes Ditch and County agricultural lands, and the west by the City of Forest Grove.

### Hydrology

The City of Cornelius is directly affected by two drainage systems, the Tualatin River on the south and Council Creek on the north. The Tualatin River begins in the forested coastal mountain range to the west of the City. The river then meanders through the agricultural lands and along urban boundaries on its way to its confluence with the Willamette River. The Tualatin River meanders for approximately 83 miles and drains approximately 712 square miles. The Tualatin River makes up a portion of the southern City boundary, between river mile 50 –51. The Tualatin River and its drainage influences current uses and has influenced development in Cornelius and the surrounding area. Downstream from Cornelius there is a 24 mile stretch of the river which only drops 12 inches in elevation, causing the river to act more like a pond than a river. This hydrologic feature greatly affects the function of the Tualatin River upstream and the associated wetlands and riparian areas, including those of Cornelius. There are five (5) small drainage basins, which bisect City of Cornelius and drain south to the Tualatin River. Portions of three (3) of these drainages have not been piped or filled and are identified in the wetland and riparian inventory.

Council Creek is a secondary tributary of the Tualatin River and forms the majority of the northern City boundary. Council Creek flows from the Coast Range foothills in western Washington County east through urban and agricultural lands to Dairy Creek, a primary tributary of the Tualatin River. There are ten (10) small drainage basins, which bisect the City of Cornelius and drain north to the Council Creek. All except for one (1) of these drainages jobs Ditch have been partially or totally piped, channeled or filled.

### Soils

There are fourteen (14) soil types mapped in City of Cornelius that are identified in the Washington County Soil Survey.

	Map Symbol	Soil Name
*	1	Aloha Silt Loam
*	2	Amity Silt Loam
*	13	Cove Silty Clay Loam
*	15	Dayton Silt Loam
*	22	Huberly Silt Loam
*	27	Labish Mucky Clay
*	37A	Quantama Loam 0-3 percent slope
*	37B	Quantama Loam 3-7 percent slope
*	42	Verboort Silty Clay Loam
*	44A	Willamette Silt Loam
*	45A	Woodburn Silt Loam 0-3 percent slope
*	45B	Woodburn Silt Loam 3-7 percent slope
*	45D	Woodburn Silt Loam 12-20 percent slope
*	46F	Xerocherpts and Haploxerolls, very steep

Five (5) of these soil types are identified as hydric, meaning the soil is saturated long enough during the growing season to develop anaerobic conditions. The hydric soils mapped in Cornelius are:

Cove Silty Clay Loam - 13      The Cove soil series consists of poorly drained soils that formed in recent clayey alluvium on floodplains. Cove Silty Clay Loam is nearly level to concave soil found along large and small streams.

Dayton Silt Loam - 15      This soil is nearly level or concave found on broad valley terraces. Runoff is slow to ponded and the erosion hazard is slight. Dayton soils are poorly drained and form in old alluvium on old terraces.

Huberly Silt Loam - 22      Runoff for this soil is slow to ponded and erosion is slight. This soil is poorly drained, nearly level or concave mixed silty alluvium found on broad valley terraces.

Labish Mucky Clay - 27      The Labish series consists of poorly drained soils that formed in mixed alluvial or lacustrine material that is high in organic matter. This soil is found on old concave lakebeds. Runoff is slow to ponded and the hazard of erosion is slight.

Verboort Silty Cl. Loam - 42      Verboort are poorly drained soils that formed a stratified, moderately fine textured and fine textured alluvium on bottomlands. This nearly level soil is in narrow, irregularly shaped, concave areas along drainageways. This soil is subject to flooding and the hazard of erosion is slight. During flooding the hazard for streambank erosion is severe.

### Vegetation

Located in the lowlands of the Tualatin River Basin the vegetation of this area was historically oak woodlands, coniferous forests, riparian areas and wetlands. With the conversion of the basin to predominantly agricultural uses the native vegetation and communities have become extensively modified. Within the urban growth boundary of the City of Cornelius the only vegetative communities that have not been completely built over, modified or removed are some of the riparian and wetland communities.

### WETLANDS

In 1989 the Oregon Legislature directed (ORS 196.674) the Division of State Lands (DSL) to compile and maintain a comprehensive State-wide Wetlands Inventory. Standards and guidelines for conducting LWI's (OAR 141-86-180 through 141-86-240) were established and are administered by DSL. A LWI fulfills the wetlands inventory requirement for State Planning Goal 5, OAR 660-23-160(3)(a) and shall indicate location, quantity and quality of wetlands. The inventory must further designate, which wetlands are significant and shall be protected. In order to determine significant wetlands as required for Goal 5, a wetland function and condition assessment of mapped wetlands must be conducted as part of the LWI using the *Oregon Freshwater Wetland Assessment Methodology (OFWAM)*.

### Materials and Methods

Initially the City gathered information about the watersheds, wetlands and possible wetlands from maps, reports, other data sources and site visits to establish a conceptual idea of the location and quantity of wetlands.

Prior to conducting actual field investigations the City reviewed current available information from the following sources. Cleanwater Services provided the City with year 2000 aerial photographs at a scale of 1 inch equals 500 feet to help identify surface water, developed, undeveloped and vegetated areas. Soil information, including hydric soil location was gleaned from the Soil Survey of Washington County (1982). The Forest Grove Quad of the National Wetland Inventory Maps provided historical wetland information. Floodplain information was obtained from the 1982 City of Cornelius Flood Insurance Rate Map (#410261-0001-A). Drainage Basin identification was determined from the Oregon Water Resources Department maps. Additional Drainage Basin information was found in Cleanwater Services Tualatin River Basin Stream Enhancement Handbook (1995). Information from the 1998 Oregon's 303(d) List of Water Quality Limited Waterbodies was provided by the Oregon Department of Environmental Quality (DEQ). A digital map base of the City that includes tax lots, right-of-ways, topography lines and waterbodies was obtained from Metro Regional Services GIS/Arc View database. The City also coordinated with the Oregon Department of Fish & Wildlife (ODFW) and the Oregon Department of Forestry to identify fish and wildlife habitat. The information collected from all of these above sources was used to develop a preliminary indication of the location of possible wetlands. The following data was gathered from this initial query:

- Cornelius is located in the Lower Willamette & Sandy River Basin, which includes the Tualatin River and Council Creek.
- Oregon Department of Fish & Wildlife and Oregon Department of Forestry identify the Tualatin River and Council Creek as fish bearing streams. The Tualatin River is also listed as habitat for anadromous salmonoid species.
- Oregon DEQ has determined that Council Creek is a "water quality limited" stream from the source to the confluence [303(d) List of Water Quality Limited Waterbodies]. USA (Cleanwater Services) Data – May to October exceeded dissolved oxygen standard (6.5 mg/l) with minimum of 0.1 mg/l in 1990 (cool water fishery, annual).
- The hydric soils identified from the County Soil Survey in the City include Verboort Silty Clay Loam, Cove Silty Clay Loam, Labish Mucky Clay and Wapato Silty Clay Loam.

No on-site sampling could be conducted where property access permission had been denied or not approved. Off-site determinations were made on the basis of aerial photography, topographic information, soil survey maps, National Wetlands Inventory (NWI) maps, already approved delineation reports and from properties off-site. Off-site observation documented dominant vegetative communities (forest, scrub/shrub or emergent) and water regimes (main channel, ponding or wet meadows).

The City in cooperation and with the direct assistance of the Division of State Lands (DSL) conducted field and map analysis to identify properties likely to contain wetlands. The owners of these properties were identified and sent access permission requests along with notification of the inventory project. Where permission was granted analysis was done on-site and wetland determinations were completed by Wetland Specialists from the Oregon Division of State Lands. The determinations were conducted using procedures described in the Corps of Engineers Wetland Delineation Manual and Technical Report (Y-87-1). Where permission for access was not granted Wetland Specialists and City staff made observations off-site, used aerial photographs, soils maps, existing wetland maps, floodplain information and topography maps to determine if wetlands were present. The Manual provides technical criteria, field indicators, and recommended procedures to be used in determining whether an area has wetland characteristics. The Manual requires that three criteria be met in undisturbed situations before areas can be considered wetland under federal or state regulations. These criteria are evidence of prolonged inundation or saturation of the soil, a predominance of plant species that typically live in wetlands, and presence of positive indicators of hydric soil.

#### Hydrologic Assessment

Wetland hydrology refers to the saturation of a major portion of the root zone (usually above 12 inches) for at least 12.5% of the growing season. Wetland hydrology is determined through field analysis based on factors such as soil saturation, depth of inundation, water table, sediment deposits, watermarks, drainage patterns and other secondary indicators.

#### Soils Assessment

Hydric soils are defined as soils that are saturated long enough during the growing to develop anaerobic (oxygen lacking) conditions in the upper part of the soils. Hydric soils are generally classified as poorly drained or very poorly drained. The possible location of areas with hydric soils was determined by using the United States Department of Agriculture Soil Conservation Service (SCS), Soil Survey of Washington County (Appendix A). During individual sample plots soil pits were excavated to a maximum depth of eighteen (18) inches for examination of the soil profile. Soil characteristics such as matrix color, redox, mottling and texture and others were recorded.

#### Vegetation Assessment

Hydric soils (wet soils) most often support a plant community dominated by hydrophytes, plants that have special adaptations for life in permanently or seasonally saturated soils. Some species adapt readily to a wide variety of conditions (weeds are prime examples), while others are specialists and thrive in a very specific habitat. For this reason, some plant species are better indicators of wetlands than others. The U.S. Fish and Wildlife Service has compiled a list of plants that grow in wetlands. Each species is given a wetland indicator status based on the frequency with which it occurs in wetlands. "Wetland indicator status" refers to the following categories obligate wetland (OBL) plants, facultative wetland (FACW) plants, facultative (FAC) plants, facultative upland (FACU) plants, and obligate upland (OBU) plants. Obligate Wetland species are found only in wetlands. Facultative-Wetland species occur in wetlands 66-99% of the time,

they are found in either permanent or seasonal wetlands and can be used to identify seasonal wetlands during the dry time of year. Facultative plants are often generalists- they occur in a wide variety of sites, including wetlands, and are especially common in areas disturbed by farming, grazing, or other activities. They are the least reliable plant "indicators" of wetlands.

### Wetland Classification

The U.S. Fish & Wildlife Service developed a wetlands classification system in 1979 called the Cowardin system. In this classification system, wetlands are defined by plants (hydropytes), soils (hydric), and frequency of flooding. The Cowardin system was used to classify wetlands and in conjunction with the *OFWAM* worksheets to assist in the evaluation of significance. The structure of the classification is hierarchical. Of the five major wetland systems three are related to inland watersheds, they are:

Riverine – All freshwater rivers and their tributaries are included in this system.

Lacustrine – Includes areas of open water greater than 20 acres or more 6.6 feet in depth.

Palustrine – All non-tidal wetlands dominated by trees, shrubs and persistent emergent herbaceous plants.

Within these three systems wetlands are divided into a number of different classes. The classes that are important to implementation of *OFWAM* are:

Open Water – Areas of water where there are no beds of emergent, submergent or floating vegetation.

Emergent Wetland – Characterized by rooted herbaceous and grass-like plants, which stand erect above the water or ground surface.

Scrub-shrub Wetland – Wetlands dominated by shrubs and tree saplings less than 20 feet in height.

Forested Wetland – Wetlands dominated by trees taller than 20 feet in height.

In the City of Cornelius most of the wetlands inventoried are classified as Palustrine Emergent, which are dominated by grasses and other herbaceous plants.

Specific on-site data was recorded in the field by Division of State Lands (DSL) Wetland Specialists and City Staff on May 8, 2002. This data was then transferred to computerized *OFWAM* forms. Sampling sites were recorded using mylars and aerial photographs. The approximate location of wetland boundaries were drafted onto aerial photographs. Each wetland boundary was then digitized on GIS maps, with each wetland receiving an individual identification code. This code was based on the drainage, stream or watershed where it was located. Wetland units were based on hydrologic connection

to wetlands and other waters and their proximity. Draft maps of wetland boundaries and locations were reviewed and confirmed by DSL staff.

### Wetland Assessment Methods

The *Oregon Freshwater Wetland Assessment Methodology (OFWAM)* was designed as a manual for planners, public officials and others to use for qualitative descriptions of wetland functions and conditions. Completion of this methodology provides basic information concerning fish/wildlife habitat, water quality, hydrology, recreation, sensitivity to impacts, enhancement potential and educational opportunities. Each function is assessed by criteria that give an indication of whether a wetland function is intact, impacted or degraded, and/or lost or degraded. Further analysis should be conducted for detailed information. The completed assessment forms indicating the quality rating can be found in Appendix B .

### WETLAND FINDINGS

**Location:** Nine wetlands and two potential wetlands have been identified in the City of Cornelius. Each wetland has been mapped showing it's approximate location in relation to the water resource, abutting and adjacent properties (Appendix C). Specific property identification information is included using Map and Tax Lot Numbers.

**Quality:** Individual wetland characteristics and function were assessed using the *OFWAM* system. Water quality, hydrologic control, fish and wildlife habitat were the main functions analyzed to address quality of the wetland. These results are found in Wetland Inventory Summary Sheets (Appendix B).

**Quantity:** Based on the inventory map there are approximately 29.3 acres of wetlands in Cornelius. The hydric soil map (Appendix A) and topographic maps for the Cornelius area indicate the majority of small drainages and wetlands in the City have been filled and piped. The nine wetlands identified are small areas abutting developed urban lands. Seven of the wetlands are Palustrine emergent wetlands (PEM), which are dominated by grasses and other herbaceous plants. Reed canary grass (*Phalaris arundinacea*) is the most common grass found in these areas. Two of the sites are identified as Palustrine Forested, which are dominated by woody species over 30 feet in height. The dominant wetland trees are Big Leaf Maple, Douglas Fir and Western Red Cedar.

#### **Jobs Ditch Unit (JD) – Tributary of Council Creek**

- Site # JD-1: North of Portland/Western rail line, south of Council Creek, abuts Riverglen PUD and south of Portland/Western rail line, north of TV Hwy, abuts Ryland Park Subdivision and Valley View Mobile Home Park.
- Site # JD-2: South of TV Hwy, north of Southern Pacific rail line, abuts Cornelius Mini-Storage.

**Council Creek Unit (CC) – Main stem of Council Creek from N. 10<sup>th</sup> Avenue to Jobs Ditch**

Site # CC-1: West of confluence with Jobs Ditch, east of NW Hobbs Rd. (aka N. 29<sup>th</sup> Ave.), west of NW Hobbs Rd. (aka N. 29<sup>th</sup> Ave.), East of Susbauer Rd. (aka N. 19<sup>th</sup> Ave.), west of Susbauer Rd. (aka N. 19<sup>th</sup> Ave.), north of Forest Hills Mobile Home Park, and east of Cornelius-Schefflin Rd. (aka N. 10<sup>th</sup> Ave.).

Site #

CCDU-1: Small wetland located north of N. 21<sup>st</sup> Avenue in the Council Creek subdivision.

**Tualatin Drainage Unit (TD) – Other Drainage Swales and Backwater Areas of the Tualatin River**

Site # TD-1: Drainage area south of S. Heather Street, north of S. Linden Street, abuts Harleman Park and Echo Shaw School.

Site # TD-2: South of S. Linden Street to City Limits into unincorporated Washington County.

Site # TD-3: Southwest of the intersection of S. 1<sup>st</sup> Avenue and the Union Pacific Railroad Tracks.

**Tualatin River Unit (TR) – Tualatin River and backwater swales, abutting City boundary**

Site # TR-1: S. 10<sup>th</sup> St bridge at City Limits, north abutting Tax Lot # 1400, Map # 1S3-4D and Stillwater Meadows Subdivision to terminus of S. 12<sup>th</sup> Ave., northeast along City Boundary to Steamboat Park, and along Danielle Park Subdivision to terminus of S. Ivy St. at Tract C.

Site # TR-2: Behrman Place Swale, abutting north/east side of Behrman Place Subdivision continuing northwest up the drainage, and Tract A, Nuttal Estates Swale, abutting north side of Danielle Park Subdivision, north between Nut Tree Estates and Rancho Verde Subdivisions.

ORS 197.279(3) directs the Division of State Lands (DSL) to establish criteria and procedures for the identification of significant wetlands under Goal 5. DSL developed and the State adopted OAR 141-86-300, which provide criteria and standards for local governments to use for determining wetland significance. The criteria for significance rely on the results from *OFWAM*.

*OFWAM* results, assessments and summaries of the functions and conditions for each wetland are included in Appendix B.

### Locally Significant Wetland Criteria

OAR 141-86-350(2) states that a local government shall identify a wetland as locally significant if it meets one or more of the following criteria:

- The wetland performs any of the following functions at the levels indicated below using the *Oregon Freshwater Wetland Assessment Methodology*:
  - diverse wildlife habitat; or
  - intact fish habitat; or
  - intact water quality function; or
  - intact hydrologic control function
- The wetland or a portion of the wetland occurs within a horizontal distance less than one-fourth (1/4) mile from a water body listed by the Department of Environmental Quality as a water quality limited water body (303(d) list), and the wetlands water quality is described as intact or impacted or degraded using *OFWAM*.
- The wetland contains one or more rare plant communities, as defined in this rule.
- The wetland is inhabited by any species listed by the federal government as threatened or endangered, or listed by state statute as sensitive, threatened or endangered, unless appropriate state or federal agency indicates that the wetland is not important for the maintenance of the species.
- The wetland has a direct surface water connection to a stream segment mapped by the Oregon Department of Fish & Wildlife as habitat for indigenous anadromous salmonoids, and the wetland is determined to have intact or impacted or degraded fish habitat function using *OFWAM*.
- Optional LSW Criteria. The wetland a locally unique plant community per OAR 141-086-350(3)(a).
- The wetland is publicly owned and determined to have educational uses using *OFWAM*, such use by a school or organization is documented for that site.

Wetlands that score “Yes” in any of the following categories do not proceed to Section B.

Wetlands artificially created entirely from upland that is:

- a. created for the purpose of controlling, storing, or maintaining stormwater;
- b. active surface mining ponds;
- c. ditches without free and open connection to waters of the state and without fish;
- d. < 1 acre and unintentionally created from irrigation leak or construction activity;

of any size and created for the purpose of wastewater treatment, shock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

### Findings for Significance

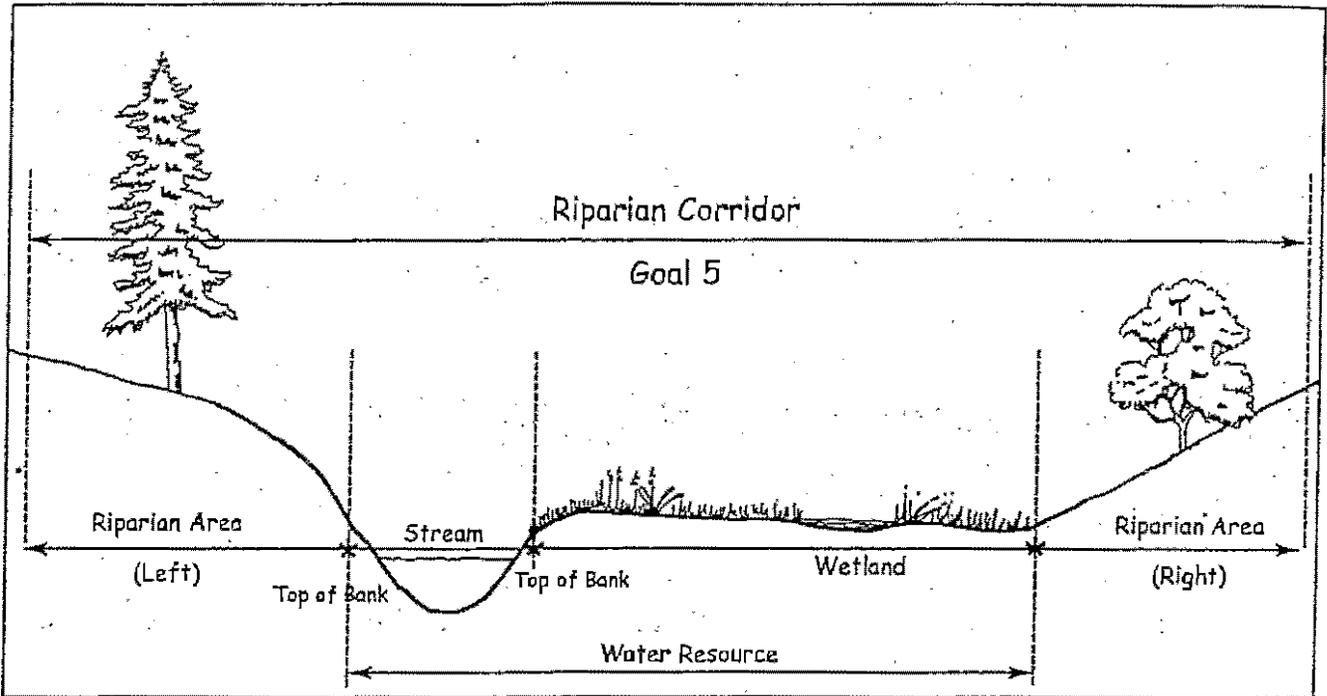
All nine wetlands have been assessed for significance per OAR 141-86-350(2), with the following results:

- Site # JD-1: Satisfies significance criteria based on highest ranking of *intact water quality and intact hydrologic control*.
- Site # JD-2: Wetland is not significant. Wetland does not satisfy any criteria in Test Section B.
- Site # TD-1: Satisfies significance criteria based on it's rating as an *impacted or degraded fish habitat with a surface water connection to a stream segment that is mapped by ODFW as habitat for indigenous anadromous salmoids*.
- Site # TD-2: Satisfies significance criteria based on highest ranking of *intact water quality, intact wildlife habitat and intact hydrologic control*.
- Site # TD-3: Wetland is not significant. Wetland does not satisfy any criteria in Test Section B.
- Site # CC-1: Satisfies significance criteria based on highest ranking of *intact water quality, intact wildlife habitat and intact hydrologic control*.
- Site #  
CCDU-1: Wetland is not significant. Wetland does not satisfy any criteria in Test Section B.
- Site # TR-1: Satisfies significance criteria based on highest ranking of *intact water quality, intact fish habitat and intact hydrologic control*.
- Site # TR-2: Satisfies significance based on it's rating as an *impacted or degraded fish habitat with a surface water connection to a stream segment that is mapped by ODFW as habitat for indigenous anadromous salmoids*

The results of the significance criteria test indicate that five (5) of the nine (9) wetlands identified are significant. The significant wetlands are Sites JD-1, TD-1, TD-2, CC-1, TR-1 and TR-2. These sites meet the state criteria and guidelines requiring these wetlands to be protected.

## RIPARIAN CORRIDORS

Riparian areas and corridors benefit communities through the enhancement of water quality, reduction of erosion by filtering sediment and pollutants, and they provide water storage area for flood control. Vegetation that grows in these corridors moderate water temperatures, reduce floodwater velocity and provide fish & wildlife habitat.



## INVENTORY

The process for compliance with Goal 5 for riparian corridors is found in OAR 660-023-0090. The State rule requires local governments to complete an inventory of riparian corridors within their jurisdiction. The definition of riparian corridor includes water areas, fish habitat, adjacent riparian areas, and wetlands within a riparian area boundary. A riparian area is the area adjacent to a river, lake, or stream consisting of the transition zones between aquatic and terrestrial ecosystems. Streams are defined as a channel such as a river or creek that carries flowing surface water, including perennial and intermittent streams with defined channels, but excludes man-made irrigation and drainage channels. As an identified Goal 5 resource riparian corridors are required to be inventoried, but the State does not specify a required inventory method to be used. The Oregon Division of State Lands has developed a tool to help identify and evaluate riparian resources in urban areas, the "*Urban Riparian Inventory & Assessment Guide*". This Guide provides information and results that do address the requirements of the Goal 5 standard inventory process.

Following the direction of the *Urban Riparian Inventory & Assessment Guide* the City gathered information from the following sources for it's initial review:

1. Oregon Department of Forestry (ODF) – Using ODF maps the Tualatin River, Council Creek and the northern half of Jobes Ditch are identified as fish bearing streams.
2. Cleanwater Services – Using Aerial Quad Maps (1"=500') taken in the year 2000 staff identified vegetative corridors and streams, which provided a view of the condition of the vegetation.
3. National Wetland Inventory Maps – These maps provided the location of wetlands as identified by the U.S. Department of Interior.
4. Federal Emergency Management Agency Flood Maps – identify the 100 year floodplain areas in the City.

All of the riparian areas that remain intact or not developed in the City are associated with two drainage systems. On the north boundary of the City is the Council Creek drainage and on the south is the Tualatin River drainage. Using the *Urban Riparian Inventory & Assessment Guide* the City established the location, the quantity, and the quality of riparian areas.

The Oregon Department of Fish & Wildlife utilize data and mapping resources concerning fish-bearing streams as prepared by the Oregon Department of Forestry. The Oregon Department of Forestry Fish Presence/Absence Maps identify the Tualatin River, Council Creek and Jobes Ditch as fish bearing streams as determined by valid fish presence surveying. OAR 629-635-200 provides rules and guidance for approximating fish use and presence without a valid fish presence survey. Fish use is assumed to extend upstream from known fish use until the first natural barrier. Natural barriers can be waterfalls, channel steepness, or lack of livable space. The Oregon Department of Forestry identifies the City of Cornelius as being located in the Interior region of the state, where drainage areas of less than 100 acres are assumed to be lack livable space for fish use. There is a fourth drainage, which exceeds the 100 acres required to meet the livable fish space standard. It is a secondary tributary of the Tualatin River located west of Harleman Park and Echo Shaw School on Tax Lot #'s 205, 206, Map # 1S3-04CB. City staff determined the approximate area of this drainage by drawing a line around the high topography marks and tabulating the acreage from all parcels located in the drainage area. This intermittent stream has a drainage area of approximately 300 acres and meets the threshold for livable space for fish use. There is also a drainage area with an intermittent stream located north of the Tualain river between S. Heather Street and S. Fawn Court. This stream has a drainage area of approximately 148 acres. Therefore, by definition of the Oregon Department of Forestry there are five (5) fish use streams (Tualatin River, Council Creek, Jobes Ditch and two unnamed intermittent streams) within the City of Cornelius that are in need of healthy riparian corridors to sustain and improve water quality and help support fish use.

The Tualatin River is largest river or stream in or abutting the City of Cornelius. The agency that monitors stream and surface water flow in Washington County is the Watermaster. The Watermaster collects and records information, which includes real time and historical data on stream flow measured in cubic feet per seconds. The Watermaster has a stream gauge station on the Tualatin River at Golf Course Road, which is at the southern City boundary. This station has records dating from 1995 to 2001 (Appendix D) provides a graphic record of the mean daily discharge of the Tualatin River at the Golf Course Road Station for the years 2000 and 2001. The annual streamflow for the Tualatin River as measured at this station is below 1000 cubic feet per second (cfs). The data from the graphs indicate that the daily discharge during 2000 and 2001 did spike above 1000 cfs. The maximums are identified below:

2000

January	2040 cfs
February	1950 cfs
March	1500 cfs

2001

November	2230 cfs
December	4340 cfs

The remaining months during this two year period the streamflow ranges from approximately 25 to 700 cfs, with the majority of the months averaging approximately 200 cfs or below.

The next largest stream by volume and watershed area in Cornelius is Council Creek. The Washington County Watermaster's office does not have a Gaging Station on Council Creek to collect and record information. Therefore, no data is available on streamflow for Council Creek. A rather general assumption can be made on annual streamflow based on data from related streams. Council Creek is a tributary of Diary Creek. The Watermaster does have a Gaging Station located downstream from the confluence of Council Creek on Diary Creek at Tualatin Valley Highway. There is only one other tributary, McKay Creek that feeds into Diary Creek, prior to the Gaging Station at Tualatin Valley Highway (TV Hwy). Data from Diary Creek Gaging Station find that there were only seven days total in the years 2000 and 2001 where the daily mean discharge was recorded between 1000 and 1480 cfs. The majority of the other days recorded the mean daily discharge below 400 cfs. Therefore, staff assumes that the average annual streamflow of Council Creek would be less than (average annual streamflow under 400 cfs) what has been recorded at the Diary Creek Gaging Station at TV Hwy.

As identified above there are three other stream in Cornelius besides Council Creek and the Tualatin River. The two unnamed intermittent streams and one perennial (Jobs Ditch) stream. No information on annual streamflow or volume is collected on any of these three streams by the Watermaster or any other agency. Each of these streams are

much smaller than Council Creek in size, volume and watershed area. The assumption would also be made that these three streams have less annual average streamflow than Council Creek.

The riparian inventory and assessment was performed on lands adjacent to or abutting streams, wetlands and/or water areas found within the City. Riparian areas on each side of the streams, wetlands and/or water areas were divided into 'reaches' based on physical characteristics. Each riparian reach is identified with a specific code associated to the hydrologic basin and the left or right side of the water resource. The left or right sides are defined by looking downstream. For example Site # LJD-1, is the left side of Jobes Ditch looking downstream towards the confluence with Council Creek. The riparian area sites are identified and described below:

**Jobes Ditch Unit (JD) – Tributary of Council Creek**

- Site # LJD-1: West side of the channel. North of Portland/Western rail line, south of Council Creek, abuts Riverglen PUD, continuing south of Portland/Western rail line, north of TV Hwy, abuts Ryland Park Subdivision.
- Site # RJD-1: East side of channel. South of Portland/Western rail line, north of TV Hwy, abuts Valley View Mobile Home Park
- Site # RJD-2: West side of channel. South of TV Hwy, north of Southern Pacific rail line, abuts Cornelius Mini-Storage.

**Council Creek Unit (CC) – Main stem of Council Creek**

- Site # RCC-1A: Southside of creek. West of confluence with Jobes Ditch, east of NW Hobbs Rd. (aka N. 29th Ave.).
- Site # RCC-1B: Southside of creek West of NW Hobbs Rd. (aka N. 29th Ave.), East of Susbauer Rd. (aka N. 19th Ave.).
- Site # RCC-1C: Southside of creek West of Susbauer Rd. (aka N. 19th Ave.), north of Forest Hills Mobile Home Park, and east of Cornelius-Schefflin Rd. (aka N. 10th Ave.).
- Site # RCCDU-1: East side of drainage swale. Riparian corridor along a small wetland located north of N. 21<sup>st</sup> Avenue in the Council Creek subdivision.
- Site # LCCDU-1: West side of drainage swale. Riparian corridor along a small wetland located north of N. 21<sup>st</sup> Avenue in the Council Creek subdivision.

**Tualatin Drainage Unit (TD) – Other Drainage Swales and Backwater Areas of the Tualatin River**

- Site # RTD-1: West side of drainage. South of S. Heather Street, north of S. Linden Street, abuts Harleman Park and Echo Shaw School.
- Site # LTD-1: East side of drainage. South of S. Heather Street, north of S. Linden Street, abuts Harleman Park and Echo Shaw School.
- Site # RTD-2: West side of water area. South of S. Linden Street to City Limits into unincorporated Washington County.
- Site # LTD-2: East side of water area. South of S. Linden Street to City Limits into unincorporated Washington County.
- Site # LTD-3: Southwest of the intersection of S. 1<sup>st</sup> Avenue and the Union Pacific Railroad Tracks. North side of drainage.
- Site # RTD-3: Southwest of the intersection of S. 1<sup>st</sup> Avenue and the Union Pacific Railroad Tracks. South side of drainage, abuts railroad track.

**Tualatin River Unit (TR) – Tualatin River and backwater swales, abutting City boundary**

- Site # LTR-1: S. 10th St bridge at City Limits, north abutting Tax Lot # 1400, Map # 1S3-4D and Stillwater Meadows Subdivision to terminus of S. 12th Ave., northeast along City Boundary to Steamboat Park, and along Danielle Park Subdivision.
- Site # RTR-2: Behrman Place Swale, abutting north side of Danielle Park and northeast side of the Behrman Place Subdivision continuing northwest up the drainage.
- Site # LTR-2: Behrman Place Swale, abutting west and south side of Nut Tree Estates Subdivision continuing northwest up the drainage, also includes Nuttal Estates Swale, north abutting between Nut Tree Estates and Rancho Verde Subdivisions.

Using the *Urban Riparian Inventory & Assessment Guide* the width of each riparian area may be determined by using the average potential tree height (PTH). This is accomplished by identifying the dominant riparian tree species located within 100 feet of the water resource. Six dominant tree species were found on the inventoried riparian areas: Douglas Fir (PTH-120), Cottonwood (PTH-120), Western Red Cedar (PTH-120), Big Leaf Maple (PTH-90), Pacific Willow (PTH-35), and Scouler Willow (PTH-30).

## RIPARIAN FINDINGS

Seventeen riparian reaches were evaluated. The results and summary of the riparian area functions based on the *Urban Riparian Inventory & Assessment Guide* is provided in Appendix E. The four functions that the riparian area assessment is based on are water quality, flood management, thermal regulation and wildlife habitat. These functions are rated either low, medium or high. *High* meaning the function is intact, *medium* means the function is somewhat degraded and *low* indicates that the function no longer exists or is severely degraded. Generally, a riparian area receives a higher rating when the following criteria are met:

### Water Quality:

- average slope is less than 10%;
- dominant vegetation cover is woody vegetation greater than 1 meter (3.2 ft.) high;
- dominant vegetation at top of bank is woody, greater than 1 meter (3.2 ft.) high;
- the extent of the impervious surface is less than 10%;
- water erosion hazard of the dominant soil is low, slight or moderate;

### Flood Management:

- flood prone areas are present beyond the top of the bank and the edge of the water resource;
- woody vegetation greater than 1 meter high are dominant in flood prone area;
- stream or water resource is not constricted by human-made features;

### Thermal Regulation:

- orientation of riparian area allow for shading of water at mid-day in summer;
- woody vegetation hangs over the edge of the water;

### Wildlife Habitat:

- more than two vegetation layers present;
- large woody present within the riparian area;
- greater than 40% of the water resource edge have at least a 30 foot wide riparian area
- surface water is present throughout the year;
- there is more than one type of water resource within or immediately adjacent to the riparian reach;
- less than 25% of the riparian area has been disturbed by development or human caused disturbance.

When these criteria are met the riparian area has the ability to provide for water quality, flood management, thermal regulation and wildlife habitat and should be protected to continue to provide these benefits.

Water Quality is an essential function whose goal should be of the highest standard possible for the use of humans, wildlife and fish. Stable, healthy native vegetation is vital in the control of erosion at the edge of a water resource. Vegetation helps trap soil, chemicals or other elements that degrade water quality. Riparian areas with a high water quality function are able to reduce soil erosion, trap or filter sediment carried in surface water and reduce the flood velocities that can damage streambanks and property. A decline in water quality in urban areas can be directly related to loss of stream side vegetation and development, including impervious surface. Impervious surfaces increase the frequency, velocity and amount of run-off and pollutants into water resources.

The results of the assessment of water quality for riparian areas in Cornelius find that all of the water resources have existing riparian vegetation. Eight (8) of the riparian reaches either directly abut Council Creek or one of it's tributaries. Council Creek is identified by Oregon Department of Environmental Quality (DEQ) as "water quality limited stream". The other nine (9) riparian reaches identified in the City, either directly abut the Tualatin River or one of it's tributaries. The Tualatin River is not water quality limited near Cornelius, but directly downstream past the confluence of Dairy Creek it is identified by DEQ as water quality limited. The results of the water quality assessment rates the riparian areas in Cornelius from medium (LJD-1, RJD-1, LJD-2, RCC-1A, RCC-1B, RCCDU-1, LCCDU-1, RTD-1, RTD-3, LTD-3) to high (RCC-1C, LTD-1, RTD-2, LTD-2, LTR-1, LTR-2, RTR-2) . In order to prevent further degradation of the water quality in Council Creek and the Tualatin River their abutting riparian areas should be protected from development and the addition of impervious surfaces.

Flood Management in riparian areas depends on the ability of the riparian area to temporarily store and detain floodwaters. Riparian areas have the ability to absorb floodwaters into their soil and slowly release these waters downstream. Herbaceous and woody vegetation help reduce the velocity of floodwaters by providing resistance. This helps detain floodwaters in riparian areas where they can infiltrate into the soil for slow release at a later time. Riparian areas with high value for the flood management function exhibit these conditions and factors.

Wetlands also have the ability and capability to absorb and retain floodwater. In the seventeen riparian areas identified in the City all contain a wetland of some size, but only one riparian area (LTR-1) along the Tualatin River is rated high for flood management. The *OFWAM* analysis conducted for wetlands indicate that six (6) of these wetlands are significant. The riparian area along Council Creek and also along the Tualatin River contain herbaceous and woody vegetation that help reduce the velocity and detain floodwaters, where they can infiltrate the soil.

Thermal Regulation of riparian areas concerns the ability of the vegetation along the water resource to assist in the cooling of water temperatures and creating other

microclimates. Vegetation located on the southside of an east-west oriented water resource has the highest potential for providing shade in the summer. At Oregon's latitude the midday sun is always south of vertical. Therefore, shade created by vegetation growing in the riparian areas along water resources will enhance thermal regulation of water temperatures and other microclimates.

The orientation of the Tualatin River and Council Creek is west to east as they pass by the City. This stream orientation allows for vegetation to grow on the southside of the water resource and provide shade during the summer months. Summer shade is essential to the thermal regulation and health of both of these streams. Cool water temperatures are critical in the Tualatin River and Council Creek for the survival of aquatic life and fish species. As previously mentioned the Tualatin River provides habitat for anadromous salmonoids. The riparian function for thermal regulation along these two streams rate from medium (LTR-1, LTR-2) to high (RTR-2, RCC-1A, RCC-1B, RCC-1C), depending on the stream reach being assessed. The two other stream drainages in the City flow north and south. They do not provide for southside shade from vegetation in the riparian corridor and their functional value for thermal regulation rates low (LJD-1, RJD-1, LJD-2, RCCDU-1, LCCDU-1, RTD-2, LTD-2) to medium (RTD-1, LTD-1, RTD-3, LTD-3)

Wildlife Habitat with a high functional value provide food, cover, shelter and a reproductive environment for urban wildlife. The elements that provide for high functional value for habitat include complex vegetative layers (trees, shrubs, herbaceous plants) provides for a variety of wildlife species, vegetation that overhangs a water resource provides shade, and vegetative or water corridors.

The riparian areas along Council Creek (RCC-1A, RCC-1B, RCC-1C), the Tualatin River (LTR-1) and one of the unnamed streams (LTR-2, RTR-2) have high functional value for wildlife habitat due to the complex vegetative layers and vegetation that overhang the water along these corridors. The other inventoried drainages within the City rate medium in functional value for wildlife habitat, their associated riparian areas have the potential to provide high functional wildlife habitat and they would be contiguous to Council Creek and Tualatin River.

Goal 5 requires local governments to inventory riparian corridors. A riparian corridor includes the water areas, fish habitat, adjacent riparian areas, and wetlands within the riparian area boundary. Water area is defined as the area between the banks of a lake, pond, river, perennial or fish-bearing intermittent stream, excluding man-made farm ponds. Riparian areas are areas adjacent to a river, lake, or stream. A stream is defined as including perennial streams and intermittent streams with defined channels. Therefore, the Cornelius riparian area inventory includes the assessment of the area adjacent to both perennial and intermittent streams. Results of the *Urban Riparian Inventory Assessment* find that all riparian areas within the City of Cornelius rank medium to high for one or more of the four functional values.

## WILDLIFE & FISH HABITAT

Goal 5 requires local governments to conduct an inventory of wildlife habitat and determine which habitats are significant for protection. The City of Cornelius is in a unique geographic location sandwiched between the Tualatin River and Council Creek. Each of these streams with associated wetlands and riparian areas are important to fish and wildlife as habitat. These habitats provide migration corridors, food, reproduction areas, protection from predators and other general life functions.

### Inventory

The Goal 5 inventory process states in OAR 660-023-0110(3) that *local governments shall obtain current (wildlife) habitat information from the Oregon Department of Fish & Wildlife (ODFW), and other state and federal agencies. These inventories shall at least include:*

- a) *Threatened, endangered, and sensitive wildlife species habitat information;*
- b) *Sensitive bird site inventories; and*
- c) *Wildlife species of concern and/or habitats of concern identified and mapped by ODFW.*

City staff contacted ODFW North Willamette Watershed District to request fish and wildlife inventory information for the Cornelius area. In particular staff requested information describing the necessary habitat requirements for threatened, endangered, and sensitive species of fish and/or wildlife and if any of these habitats exist in Cornelius. ODFW referred the City to the Oregon Natural Heritage Program to request a data search for information on threatened, endangered, and sensitive species in Cornelius. The Oregon Natural Heritage Program data search identified six (6) records within a two (2) mile radius of the City of Cornelius where threatened, endangered, and sensitive wildlife, fish or plant species have been inventoried. These species are:

1. Aleutian Canada Goose (*Branta canadensis leucopareia*) – Southwest of City.
2. Bald Eagle (*Haliaeetus leucocephalus*) – Southwest of City.
3. Steelhead, Willamette River Winter Run (*Oncorhynchus mykiss*) – Tualatin River
4. Northwestern Pond Turtle (*Clemmys marmorata marmorata*) – East of City.
5. Nelson Sidalcea (*Sidalcea nelsoniana*) – West of City.
6. Shaggy Horkelia (*Horkelia congesta*) – West of City.

No records from Oregon Heritage Program indicate that any threatened, endangered, and sensitive wildlife, fish or plant species have been identified within the City. The Oregon Natural Heritage Program encouraged staff to contact other sources for wildlife habitat information such as Metro Regional Services and U.S. Fish & Wildlife.

The City of Cornelius re-contacted ODFW to request information on what habitats should be inventoried for protection of wildlife in the City. The City received a letter

dated April 10, 2002, in which the Oregon Department of Fish & Wildlife provided specific identification of five unique fish and wildlife habitats recommended for protection in the Cornelius area (Appendix F). ODFW's letter states that these habitats are rare and declining throughout much of western Oregon and support a wide range of threatened, endangered and sensitive fish and wildlife species. In a letter dated May 31, 2002 from Jeffrey Weber, Salmon Recovery Specialist, Oregon Department of Land Conservation & Development (DLCD) he responds to ODFW's letter (April 10, 2002) recommending protection of these five (5) habitats. Jeffrey Weber states that the ODFW letter (April 10, 2002) only partly fulfills the intent of the rule [OAR 660-23-110(3)]. However, he further states that inventory information available from other sources identified in ODFW's letter would be sufficient to help meet the requirement of OAR 660-23-110(3). ODFW also recommended contacting Northwest Habitat Institute, Metro Regional Services (Metro) or the Nature Conservancy for wildlife habitat and species data. The habitats identified by ODFW for protection include *In-stream Habitat, Riparian Floodplains, Wetlands, Oak Woodlands/Savannahs and Native Prairie Grasslands.*

*In-stream Habitat – Includes both fish and non-fish bearing streams, primary channels, secondary channels, high flow channels, tributaries, ponds, and oxbows. These types of in-stream habitats have decreased by 50% in the Willamette Valley. Fish bearing streams are identified on the Oregon Department of Forestry Fish Presence/Absence Maps and are essential for spawning, rearing, and migration habitat for Chinook salmon, Coho salmon, winter steelhead, cutthroat trout, Oregon chub, Brook lamprey, and other non-game fish species. The non-fish bearing streams provide important nutrient cycling and water quality functions to support fish populations in downstream waters. In-stream habitat also provides important habitat for various wildlife species of concern including the bald eagle, osprey, great blue heron, northern red-legged frog, western pond turtle, painted turtle, Aleutian Canada goose, and Dusky Canada goose.*

The Oregon Department of Forestry Fish Presence/Absence Maps identify the Tualatin River, Council Creek and Jobs Ditch as fish bearing streams as determined by valid fish presence surveying. OAR 629-635-200 provides rules and guidance for approximating fish use and presence without a valid fish presence survey. Fish use is assumed to extend upstream from known fish use until the first natural barrier. Natural barriers can be waterfalls, channel steepness, or lack of livable space. The Oregon Department of Forestry identifies the City of Cornelius as being located in the Interior region of the state, where drainage areas of less than 100 acres are assumed to be lack livable space for fish use. There are two other drainages, which exceed 100 acres required to meet the livable fish space standard (Appendix G). One is a secondary intermittent tributary of the Tualatin River located west of Harleman Park and Echo Shaw School on Tax Lot #'s 205, 206, Map # 1S3-04CB. This intermittent stream has a drainage area of approximately 300 acres. The other is an intermittent stream north of the Tualatin River, north of S. Heather Street and south of S. Fawn Court (Tax Lot #'s 600, 800, 5400 and 4900, Map # 1S4AD & Tax Lot #'s 2100, 2200, Map # 1S34DA). This second intermittent stream has a drainage area of approximately 148 acres. City staff determined the approximate area of this drainage by drawing a line around the high

topography marks and tabulating the acreage from all parcels located in the drainage areas. Therefore, besides the three drainages (Tualatin River, Council Creek and Jobs Ditch) already mentioned this unnamed stream should be included as a fish use stream.

*Riparian Floodplains – Are the vegetated zones directly influenced by periodic riverine flooding. Riparian areas in the Willamette Valley have declined by 87% due to diking, channelization, water diversions, agricultural conversion, and urban/industrial uses. The rarest and most ecologically important portions of the riparian floodplain that require protection include native cottonwood riparian forests, slough/oxbows, gravel bars, forested wetlands, and riparian areas within the 25-year floodplain. Listed fish and wildlife species that are dependent upon riparian floodplains for primary life functions include the bald eagle, osprey, great blue heron, northern red-legged frog, Chinook salmon, winter steelhead, and cutthroat trout.*

City staff has conducted an inventory of riparian areas in the City based on the Division of State Lands Urban Riparian Inventory & Assessment Guide. The location of riparian areas have been mapped and quantified (Appendix H). The quality of the areas have been assessed based on the functional values identified in the *Urban Riparian Inventory and Assessment Guide*.

*Wetlands – Have declined drastically in the Willamette Valley as a result of growing commercial, industrial, and residential developments. Twenty-nine at risk species, including American peregrine falcon, Aluetian Canada goose, dusky Canada goose, purple martin, western pond turtle, painted turtle, tri-colored blackbird, northern red-legged frog and Western Oregon little flycatcher utilize wetlands for many of their essential life functions.*

Wetland Specialists from the Division of State Lands have identified wetlands in the City and City Staff has completed the *Oregon Freshwater Wetlands Assessment Methodology (OFWAM)*. The location of wetlands have been mapped and quantified (Appendix C). The quality of the of wetlands have been assessed based on the functional values identified in *OFWAM*.

*Native Prairie Grasslands – Are complex multiple species communities that have formed under the influence of frequent flood regimes and fire disturbance. Ninety-nine percent of the historic extent of native grasslands has been lost due to agricultural conversion, land development, and fire suppression. Sensitive, threatened, and endangered species that depend upon this habitat type for one or more life functions include: painted turtle, sharptailed snake, western pond turtle, dusky Canada goose, Oregon vesper sparrow, purple martin, burrowing owl, common nighthawk, Lewis' woodpecker, western gray squirrel, pallid bat, long-legged myotis, long-eared myotis, streaked horned lark, grasshopper sparrow, western bluebird, western meadowlark, and blacktailed jackrabbit.*

*Oak Woodlands/Savannah's – Agricultural conversions, urbanization, and the suppression of fire have caused an 80% decline in this habitat type since pre-European periods. Remaining oak savannah's and woodlands provide some of the Willamette*

*Valleys more important wildlife habitat. Oregon white oak provides nesting habitat for nearly 200 wildlife species. Sensitive, threatened, and endangered species that are dependent upon oak woodlands for their life functions include: pileated woodpecker, western bluebird, Oregon vesper sparrow, Lewis' woodpecker, acorn woodpecker, fringed myotis, silver-haired bat, western gray squirrel, and many others.*

The City has reviewed Metro fish and wildlife habitat maps, aerial photography and Northwest Habitat Institute data and it does not indicate the existence of any Native Prairie Grasslands and/or Oak Woodlands/Savannah's at this time in the City of Cornelius. The Metro fish and wildlife habitat maps do identify streams, riparian areas and wetlands that have been documented to exist by staff (Appendix I). This is consistent with the recommendations of habitat to protect by ODFW.

Metro Regional Services habitat inventory and mapping for fish and wildlife identify riparian areas, wetlands and in-stream habitats for protection in the City of Cornelius. This corresponds with the recommendation from ODFW for protection of declining habitats that are necessary to support fish and wildlife species. The City has already completed as part of its' natural resources inventory identification of significant wetlands and riparian areas. These areas also function as valuable fish and wildlife habitat.

#### Fish and Wildlife Habitat – Inventoried Sites:

1. Tualatin River
2. Tualatin River Riparian Corridor (Site LTR-1)
3. Site TR-2 - Wetland and Riparian Corridor
4. Site TD-1 - Wetland and Riparian Corridor
5. Site TD-2 - Wetland and Riparian Corridor
6. Site TD-3 - Wetland
7. Council Creek
8. Council Creek Wetlands and Riparian Corridor
9. Site CCDU-1 – Wetland and Riparian Corridor
10. Jobs Ditch – Wetland & Riparian Corridor

#### Determination of Significance

The City has inventoried specific fish and wildlife habitat based on information obtained from Oregon Department of Fish & Wildlife (ODFW) and other agencies referred by ODFW. Utilizing processes established by the Oregon Division of State Lands the City has inventoried wetlands and riparian areas within the City. Oregon Administrative Rules [OAR 660-023-0110(4)] state that local governments may determine wildlife habitat significance under the ESEE (economic, social, environmental and energy) Decision Process (OAR 660-023-0040) or apply the safe harbor criteria.

*Under the safe harbor, local governments may determine that "wildlife" does not include fish, and that significant wildlife habitat is only those sites where one or more of the following conditions exist. [OAR 660-023-0110(4) (Wildlife Habitat)]*

- (a) The habitat has been documented to perform a life support function for a wildlife species listed by the federal government as a threatened or endangered species or by the state of Oregon as threatened, endangered, or sensitive species;*
- (b) The habitat has documented occurrences of more than incidental use by species described in subsection (a) of this section;*
- (c) The habitat has been documented as a sensitive bird nesting, roosting, or watering resource site for osprey or great blue herons pursuant to ORS 527.710 (Oregon Forest Practices Act) and OAR 629-024-0700 (Forest Practices Rule);*
- (d) The habitat has been documented to be essential to achieving policies or population objectives specified in a wildlife species management plan adopted by the Oregon Fish and Wildlife Commission pursuant to ORS Chapter 496; or*
- (e) The area is identified and mapped by ODFW as habitat for a wildlife species of concern and/or as a habitat of concern (e.g., big game range, and migration corridors, golden eagle and prairie falcon nest sites, or pigeon springs).*

ODFW has stated that in-stream, wetlands and riparian areas are habitats that are necessary to support a wide range of threatened and endangered species. This satisfies subsection (a) above. ODFW has identified Goal 5 habitats of concern for the City of Cornelius as In-stream Habitat, Riparian Floodplains, Wetlands, Oak Woodlands/Savannahs and Native Prairie Grasslands. Three (3) of these habitats have been inventoried and mapped in the City of Cornelius using field verified information from the Oregon Department of Forestry (fish bearing streams), Division of State Lands (wetlands), City Staff (riparian areas). There are no Oak Woodlands/Savannahs or Native Prairie Grasslands in Cornelius. This satisfies subsection (e) above.

In a letter dated August 22, 2002 the Oregon Department of Forestry states that the records from the District Office in Forest Grove do not provide documentation of any sensitive bird nesting, roosting, or watering resource sites for osprey or great blue heron within the City of Cornelius.

#### WILDLIFE & FISH FINDINGS

Oregon Department of Fish & Wildlife referred the City to the Oregon Natural Heritage Program to determine, which wildlife species are listed by the state as threatened, endangered or sensitive and may occur within the City based upon their known ranges, and habitat associations. Based on records from the Oregon Natural Heritage Program the City received the following list of species.

### Amphibians

<u>Western toad</u>	<u><i>Bufo boreas</i></u>	<u>Sensitive – Vulnerable</u>
<u>Red-legged frog</u>	<u><i>Rana aurora</i></u>	<u>Sensitive – Vulnerable</u>

ODFW identifies riparian areas as a general area of occurrence for the Western Toad and both of these amphibians use riparian areas as feeding habitat.

### Reptiles

<u>Painted turtle</u>	<u><i>Chrysemys picta</i></u>	<u>Sensitive – Critical</u>
<u>Sharptail snake</u>	<u><i>Contia tenuis</i></u>	<u>Sensitive – Vulnerable</u>

ODFW's Oregon Wildlife Diversity Plan lists Painted Turtle as using riparian areas for reproduction.

### Birds

<u>Common nighthawk</u>	<u><i>Chordeiles minor</i></u>	<u>Sensitive – Critical</u>
<u>Yellow-billed cuckoo</u>	<u><i>Coccyzus americanus</i></u>	<u>Sensitive – Critical</u>
<u>Pileated woodpecker</u>	<u><i>Dryocopus pileatus</i></u>	<u>Sensitive – Vulnerable</u>
<u>Streaked horned lark</u>	<u><i>Eremophila alpestris strigata</i></u>	<u>Sensitive – Critical</u>
<u>Peregrine falcon</u>	<u><i>Falco peregrinus anatum</i></u>	<u>Listed Endangered</u>
<u>Yellow-breasted chat</u>	<u><i>Icteria virens</i></u>	<u>Sensitive – Critical</u>
<u>Oregon vesper sparrow</u>	<u><i>Poocetes gramineus affinis</i></u>	<u>Sensitive – Critical</u>
<u>Western bluebird</u>	<u><i>Sialia mexicana</i></u>	<u>Sensitive – Vulnerable</u>
<u>Western meadowlark</u>	<u><i>Sturnella neglecta</i></u>	<u>Sensitive – Critical</u>

As listed by ODFW the Yellow-billed Cuckoo, Common Nighthawk and Yellow-breasted Chat require riparian areas for feeding and reproduction.

### Mammals

<u>Western big-eared bat</u>	<u><i>Corynorhinus townsendii</i></u>	<u>Sensitive – Critical</u>
<u>Silver-haired bat</u>	<u><i>Lasiorycteris noctivagans</i></u>	<u>Sensitive – Undetermined</u>
<u>Long-eared myotis (bat)</u>	<u><i>Myotis evotis</i></u>	<u>Sensitive – Undetermined</u>
<u>Fringed myotis (bat)</u>	<u><i>Myotis thysanodes</i></u>	<u>Sensitive – Vulnerable</u>
<u>Long-legged myotis (bat)</u>	<u><i>Myotis volans</i></u>	<u>Sensitive – Undetermined</u>
<u>Western gray squirrel</u>	<u><i>Sciurus griseus</i></u>	<u>Sensitive – Undetermined</u>

The Oregon Wildlife Diversity Plan lists riparian areas as general habitat for the Long-eared Bat and the Long-legged Bat.

### Fish

<u>Steelhead (Upper Willamette River)</u>	<u><i>Oncorhynchus mykiss</i></u>	<u>Threatened</u>
<u>Chinook salmon (Upper Willamette)</u>	<u><i>Oncorhynchus tshawytscha</i></u>	<u>Threatened</u>

The Oregon Natural Heritage Program states that these fish species may be present within the waterways contained in the Cornelius. The natural Heritage Program has documented

records of the Steelhead (Upper Willamette River), *Oncorhynchus mykiss* in the Tualatin River.

The results of the data search by the Oregon Natural Heritage Program indicate there are nineteen (19) species of amphibians, reptiles, birds and mammals listed as either sensitive, threatened or endangered that may occur within the City based upon their known ranges, and habitat associations. Of these nineteen (19) species eight (8) need riparian areas for feeding, reproduction or use as general habitat.

Oregon Natural Heritage Program also has documented records of a threatened fish species, the Steelhead (Upper Willamette River), *Oncorhynchus mykiss* using the Tualatin River as in-stream habitat.

Riparian areas, wetlands and in-stream waterways, such the Tualatin River and tributaries as identified by ODFW provide necessary habitat for sensitive, threatened and endangered species. Natural resources such as wetlands, riparian areas and in-stream habitats in Cornelius are linked by topography, soils, hydrology and vegetation to each other. The health and stability of these resources affect each other and the users of these habitats. The City of Cornelius concurs with the Oregon Department of Fish and Wildlife in identifying riparian areas, wetlands and in-stream habitat as significant and in need of protection.

## NATURAL RESOURCE INVENTORY SUMMARY

Oregon Statewide Planning Goal 5 requires that local governments inventory natural resources as identified in OAR 660-015-0000(5). There are twelve resources listed for inventory in Goal 5, three of these resources are found within the City of Cornelius. They are riparian corridors, wetlands and wildlife habitat.

The Cornelius Goal 5 Local Wetland Inventory (LWI) was completed in compliance with direct assistance and guidance from the Oregon Division of State Lands (DSL). DSL is the state agency that governs and approves LWI's. The LWI identified nine (9) wetlands in the City of Cornelius. All nine (9) wetlands are part of drainages associated with Council Creek or the Tualatin River. Five (5) of the nine (9) wetlands identified were determined to be locally significant.

Seventeen (17) riparian reaches were mapped along streams that were identified as perennial and intermittent. The seventeen riparian areas have been mapped for location and identified for quantity. Using the *Urban Riparian Inventory & Assessment Guide* all of the inventoried riparian areas ranked medium to high on one or more of the assessed functional values. This establishes a method for determining the quality of the riparian resource.

Five (5) specific fish and wildlife habitats have been identified by the Oregon Department of Fish & Wildlife for protection in the North Willamette Watershed District. Three (3) of these habitats are found in the City of Cornelius. These include in-stream habitat, riparian corridors and wetlands. Eight (8) of the nineteen (19) species of amphibians, reptiles, birds and mammals identified by the Oregon Natural Heritage Program, that are listed as either sensitive, threatened or endangered may occur within the City based upon their known ranges, and habitat associations. ODFW states that these eight (8) species need riparian areas for feeding, reproduction or use as general habitat. Oregon Natural Heritage Program also has documented records of a threatened fish species, the Steelhead (Upper Willamette River), *Oncorhynchus mykiss* using the Tualatin River as in-stream habitat. The location and quantity of these habitats have been identified in the wetland and riparian inventories conducted for Goal 5.

Therefore, in conclusion the City of Cornelius has addressed the requirements of State Planning Goal 5 to inventory its' natural resources. The Natural Resources Inventory identifies the location, quantity and quality of the remaining surface streams, wetlands and riparian areas in the City of Cornelius. Documentation provided by the Oregon Department of Fish & Wildlife (ODFW), Oregon Department of Forestry and Oregon Natural Heritage Program have determined the fish and wildlife habitats, which need to be protected as in-stream habitat, wetlands and riparian corridors. The Natural Resources Inventory includes data on in-stream conditions, identifies the significant wetlands and assesses functional values of the riparian corridors in the City. Based on results of the significance tests and the summary of the functional values the following wetland and

riparian areas shall be included on the City of Cornelius list of significant Goal 5 resources.

RESOURCE FEATURE	WETLAND SITE SIGNIFICANCE (pg.11)	RIPARIAN AREA FUNCT. VALUE (Appendix E)	FISH/WILDLIFE HABITAT (Appendix F)
Council Creek	CC-1: Significant  CCDU-1:Not Sig.	RCC-1A: High-Med. RCC-1B: High-Med. RCC-1C: High-Med. RCCDU-1:Med-Low LCCDU-1:Med-Low	Protect in-stream, wetlands, riparian.
Jobes Ditch	JD-1: Significant  JD-2: Not Sign.	LJD-1: Medium RJD-1: Medium RJD-2: Low-Medium	Protect in-stream, wetlands, riparian.
Tualatin River	TR-1: Significant	LTR-1: High	Protect in-stream, wetlands, riparian.
Unnamed Stream #1 - Intermittent	TD-1: Significant  TD-2: Significant  TD-3: Not Sign.	LTD-1: High-Med. RTD-1: Medium LTD-2: High-Med. RTD-2: High-Med. LTD-3: Med.-Low RTD-3: Med.-Low	Protect in-stream, wetlands, riparian.
Unnamed Stream #2 - Intermittent	TR-2: Significant	RTR-2: High LTR-2: High-Med.	Protect in-stream, wetlands, riparian.

The City of Cornelius designates the following inventoried natural resource sites as significant based on meeting the wetlands significance criteria, ranking high on the riparian functional values and providing habitat that supports fish and wildlife.

Significant Wetland Sites: CC-1, JD-1, TR-1, TR-2, TD-1, TD-2

Significant Riparian Sites: RCC-1, RJD-1, LJD-1, LTR-1, RTR-2, LTR-2, LTD-1, RTD-1, LTD-2, RTD-2

Significant Wildlife Habitat Sites: CC-1, JD-1, TR-1, TD-1, TD-2  
RCC-1, RJD-1, LJD-1, LTR-1, RTR-2, LTR-2, LTD-1, RTD-1, LTD-2, RTD-2

## DEFINITIONS

"Anerobic" - a situation where molecular oxygen is absent from the environment.

"Fish habitat" - those areas upon which fish depend in order to meet their requirements for spawning, rearing, food supply, and migration.

"Natural Waterways" as defined in OAR 141-085-0010(27), including any perennial or intermittent stream, channelized stream or any other channel that contains fish, are not considered to be "drainage or irrigation" ditches.

"Riparian area" - the area adjacent to a river, lake, or stream, consisting of the area of transition from an aquatic ecosystem to a terrestrial ecosystem.

"Riparian corridor" - a Goal 5 resource that includes the water areas, fish habitat, adjacent riparian areas, and wetlands within the riparian area boundary.

"Stream" - a channel such as a river or creek that carries flowing surface water, including perennial streams and intermittent streams with defined channels, and excluding man-made irrigation and drainage channels. LWI rules, "stream" means a watercourse created by natural processes, or one that would be in a natural state if it were not for human-caused alterations.

"Top of Bank" - defined as bankfull stage. Bankfull Stage means the stage or elevation at which water overflows the natural banks of streams or other waters of this state and begins to inundate the upland. In the absence of physical evidence, the two-year recurrence interval flood elevation may be used to approximate the bankfull stage.

"Water area" - the area between the banks of a lake, pond, river, perennial or fish-bearing intermittent stream, excluding man-made farm ponds.

"Waters of the State" means natural waterways including all tidal and nontidal bays, intermittent streams, constantly flowing streams, lakes, wetlands and other bodies of water in this state, navigable and nonnavigable, including that portion of the Pacific Ocean which is in the boundaries of this state.

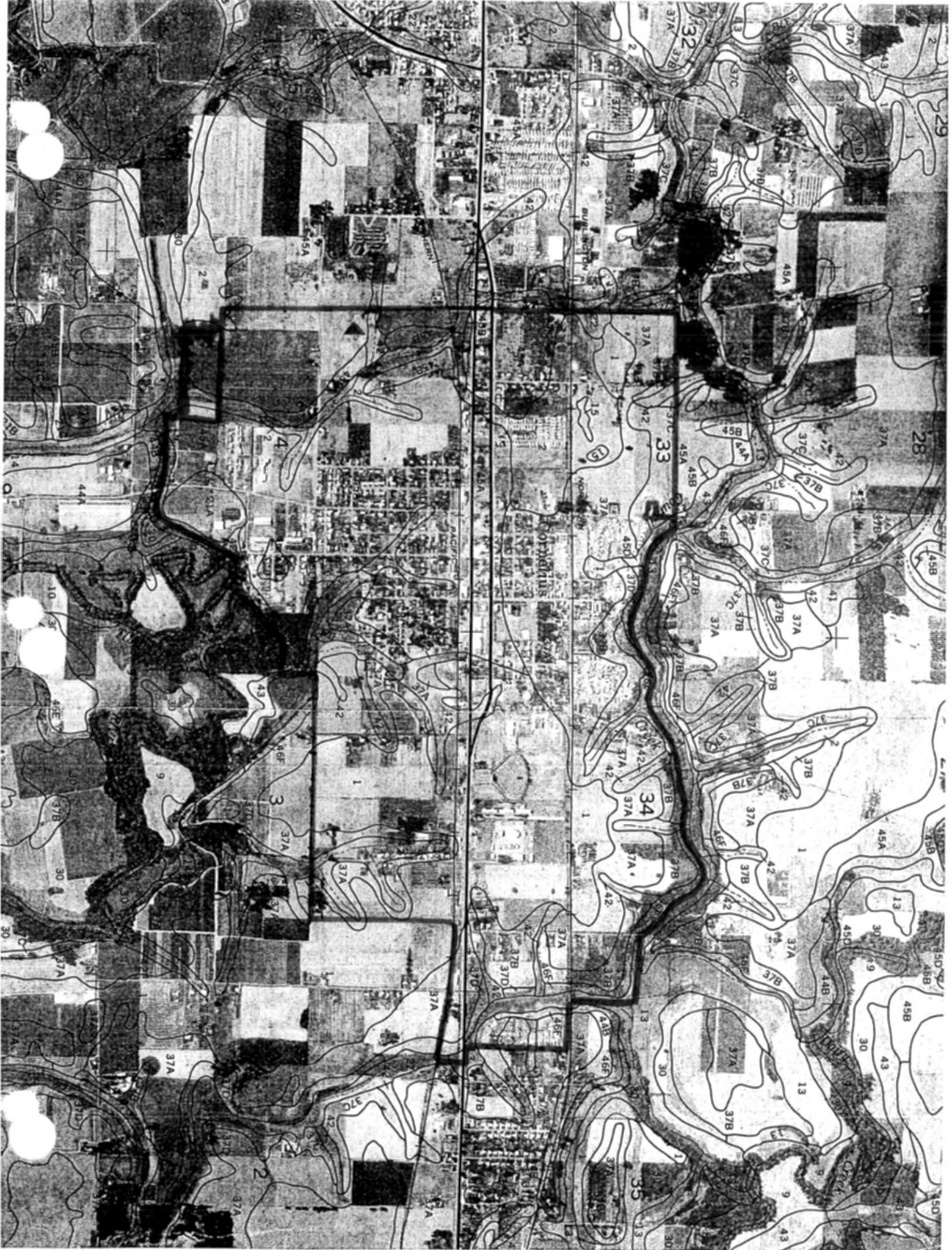
"Wetlands" - those areas that are inundated or saturated by surface or ground water at a frequency or duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

"Wildlife Habitat" - is an area upon which wildlife depend in order to meet their requirements for food, water, shelter, and reproduction.



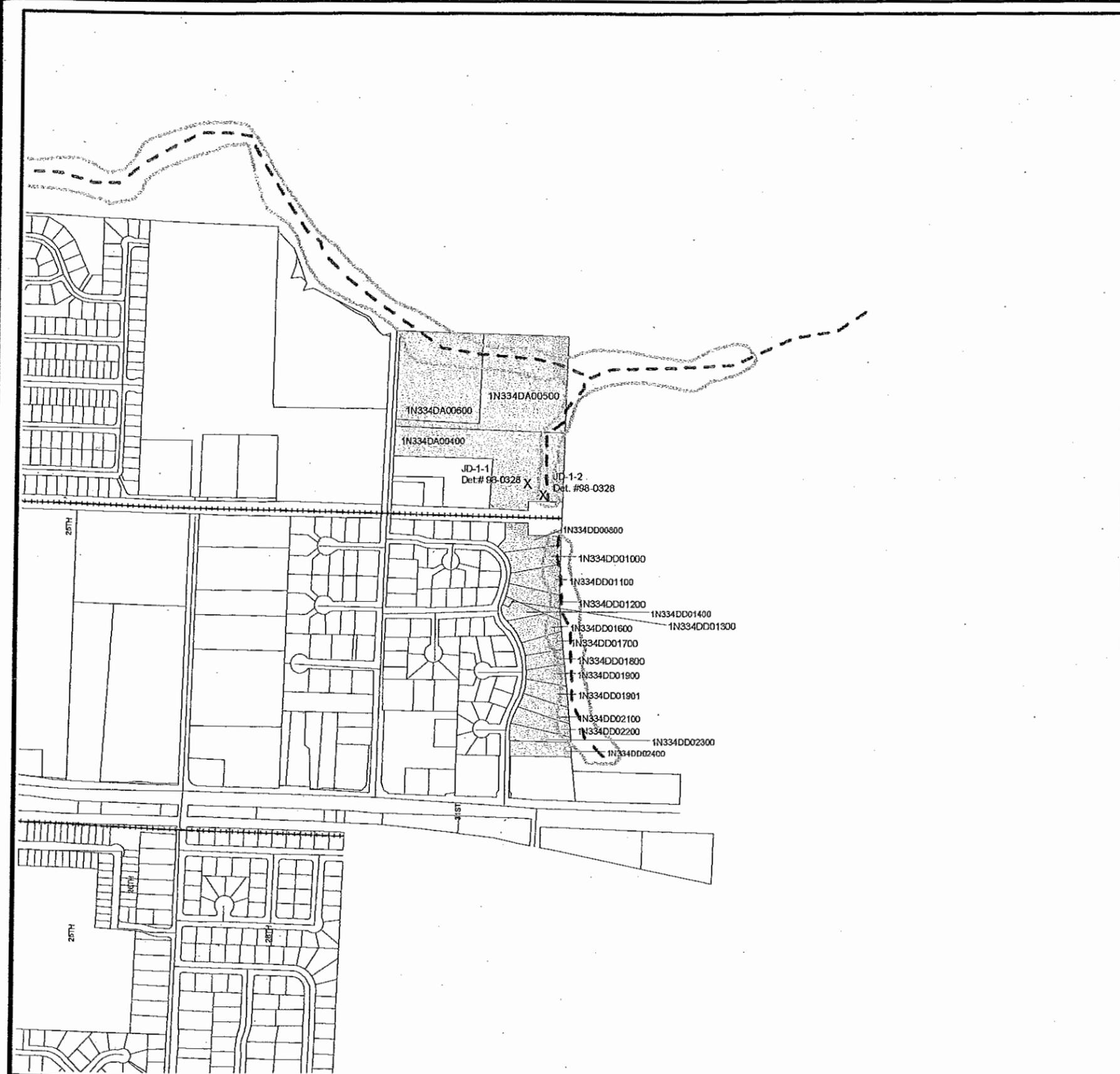
# **Appendix A**

## **HYDRIC SOILS MAP**



## **Appendix B**

# **OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY (OFWAM) RESULTS**



T1N R3W SECTION 34

City of Cornelius  
Local  
Wetland Inventory

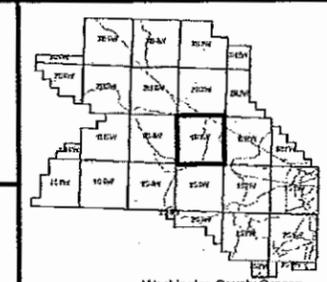
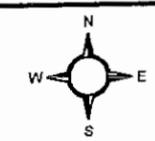
Wetland Site: JD-1

Legend

- X Sample Plot
- ▬ Railroad
- ▬ Streets
- ▬ Drainage Ditch
- ▬ Stream
- Wetland
- ▨ Adjacent Parcels
- Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

1:7200  
100 0 100 Feet



Washington County Oregon  
Information Current as of:  
**November 2002**

## CITY OF CORNELIUS LWI COVER SHEET

<b>Wetland Identification:</b> JD-1	<b>Date of Field Verification:</b> 5/8/02
<b>Investigators:</b> KV, JG (DSL)	<b>Size (acres):</b> @ 5.5
<b>Data Sheets:</b> Off-Site	<b>Cowardin Classification:</b> PEM
	<b>HGH Classification:</b> Riverine

### LOCATION

Map # 1N3-34DC      Tax Lot #'s 105, 107  
 Map # 1N3-34DD      Tax Lot #'s 1000, 1100, 1200, 1400, 1600, 1700, 1800, 1900, 1901, 2100, 2200,  
 2300,2400, 8200  
 Map # 1N3-35C      Tax Lot # 500

**Other:**            South of the Council Creek corridor, part of east City boundary.

**Basin:**            Council Creek

### QUALITY

OAR 141-086-0185 states that a wetland function and condition assessment using the *Oregon Freshwater Wetland Assessment Methodology (OFWAM)* shall be conducted to determine the quality and significance of the wetland. *OFWAM* results for Wetland JD-1 indicate the functions for water quality and hydrology are intact and this satisfies the Locally Significant Wetland Criteria identified in OAR 141-86-350.

**Soils**            **Mapped Series:** Cove Silty Clay Loam

**Hydrology**    **Hydrologic Source:** Surface Flow

### **Dominant Wetland Vegetation**

TREES	SHRUBS	VINES	HERBS
			<i>Phalaris arundinacea</i>
			<i>Rubus discolor</i>

### QUANTITY

The entire JD-1 wetland area is approximately 5.5 acres in size. There are ten perennial streams (with associated wetlands/riparian areas) that originate within the City and drain north to Council Creek. Jobs Ditch is the only one of these perennial streams (with associated wetlands/riparian areas) that has not been filled or piped as the City has grown and developed.

### **COMMENTS:**

A Wetland Determination and Delineation was conducted in November 1999 by Jeff Kee for LDC Design Group. The analysis was submitted to the Division of State Lands (DSL) for review. The wetland delineation reports were approved by DSL (DSL Det. # 98-0328, 00-0052, 00-0138).

### **Wetland Classifications Codes:**

PEM – Palustrine Emergent    PFO – Palustrine Forested    PSS – Palustrine Scrub-Shrub  
 PUB – Palustrine Unconsolidated Bottom

**CITY OF CORNELIUS**

**OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY**

**Date:** May 8, 2002

**Wetland Identification:** JD-1

**Investigators:** KV, JG (DSL)

<b>Wildlife Habitat</b>	<b>Fish Habitat - Streams</b>	<b>Fish Habitat - Lakes/Ponds</b>	<b>Water Quality</b>	<b>Hydrologic Control</b>
Q1 - A	Q1 - C	Q1 - B	Q1 - A	Q1 - A
Q2 - C	Q2 - B	Q2 - B	Q2 - A	Q2 - A
Q3 - B	Q3 - C	Q3 - B	Q3 - A	Q3 - A
Q4 - C	Q4 - C	Q4 - C	Q4 - A	Q4 - C
Q5 - A	Q5 - C	Q5 - C	Q5 - A	Q5 - C
Q6 - A	Q6 - B	Q6 - B	Q6 - C	Q6 - B
Q7 - C				Q7 - A
Q8 - C				
Q9 - B				

<b>Sensitivity to Impact</b>	<b>Enhancement Potential</b>	<b>Education</b>	<b>Recreation</b>	<b>Aesthetic Quality</b>
Q1 - A	Q1 - A	Q1 - A	Q1 - A	Q1 - A
Q2 - B	Q2 - A	Q2 - B	Q2 - C	Q2 - A
Q3 - A	Q3 - C	Q3 - B	Q3 - B	Q3 - A
Q4 - A	Q4 - A	Q4 - B	Q4 - B	Q4 - B
Q5 - A	Q5 - B	Q5 - A	Q5 - A	Q5 - A
Q6 - C	Q6 - B	Q6 - A	Q6 - B	Q6 - B

<b>Wildlife Habitat</b>	The wetland provides some habitat for wildlife species.
<b>Fish Habitat - Streams</b>	The wetland's fish habitat function is impacted/degraded.
<b>Fish Habitat - Lakes/Ponds</b>	The wetland's fish habitat function is impacted/degraded.
<b>Water Quality</b>	The wetland's water quality function is impacted.
<b>Hydrologic Control</b>	The wetland's hydrologic control function is intact.
<b>Sensitivity to Impact</b>	The wetland is potentially sensitive to future impacts.
<b>Enhancement Potential</b>	The wetland has high potential for enhancement.
<b>Education</b>	The wetland has potential for educational use.
<b>Recreation</b>	The wetland is appropriate for recreation opportunities.
<b>Aesthetic Quality</b>	The wetland is considered pleasing.

# City of Cornelius Wetland Inventory Summary Sheet

## Wetland Site: JD-1, Jobes Ditch

<u>Function</u>	<u>Evaluation Descriptor</u>	<u>Rationale</u>
<b>Wildlife Habitat</b>	Provides some habitat for wildlife.	Three Cowardin classes present; emergent vegetation is the dominant cover; wetland is connected to a perennial stream; developed uses infringe on the wetland
<b>Fish Habitat</b>	Fish habitat is impacted or degraded.	Stream flows south to north; very little stream-side shade; dominant use at wetlands edge is developed uses; no documentation of fish present.
<b>Water Quality</b>	Water quality is impacted.	Primary source of water is surface flow; over 60% of the wetland has vegetation cover; wetland is more than 5 acres; evidence of ponding during a portion of growing season
<b>Hydrologic Control</b>	Hydrology is intact	All or part of the wetland is located in the 100 yr floodplain; evidence of ponding during the growing season; wetland area >5 acres; wetland has unrestricted flow; emergent/wet meadow vegetation is dominant cover; dominant downstream uses are agriculture; dominant upstream use is urban.
<b>Sensitivity to Future Impacts</b>	Potentially sensitive to future impacts	The adjacent stream bank has been modified by human activities; water is not being taken out upstream; upstream/adjacent reaches are listed as water quality limited; residential development, a state highway and a railroad line are within 500 feet of wetland; emergent vegetation and ponding is the dominant vegetation cover.
<b>Enhancement Potential</b>	High enhancement potential	One or more of the functions is impacted or degraded; surface flow stream is the primary source of water; a

		railroad track has restricted the flow between the wetland areas; wetland area is greater than 5 acres; between 10% - 40% of the wetland's edge is bordered by a vegetative buffer 25 feet or more in width.
<b>Education</b>	Wetland has educational uses.	The wetland does have a public observation area; one or two visible safety hazards exist; the wetland does not meet the criteria for provision of diverse fish & wildlife habitat; public access does not exist, but a public observation does;
<b>Recreation</b>	Provides recreational opportunities	Public park abuts the wetland; no trails or boat launching areas exist; some wildlife habitat does exist; fishing is allowed, fish presence has not been documented.
<b>Aesthetic Quality</b>	Wetland aesthetics are pleasing.	Three Cowardin classes are visible; over 50% of the wetland is visible from private property or public park; Visual detractors exist (highway, residential development, RR tracks) and cannot be easily removed; the visual character of the surrounding area has been landscaped or manipulated by people; from the public park and private property natural odors would dominate; some traffic and residential noise would conflict with natural sounds.

### **Narrative Description of Overall Wetland Functions and Conditions**

Site JD-1 abuts Jobes Ditch a perennial stream that flows south to north into Council Creek, a DEQ Water Quality Limited stream. This wetland area is bisected by railroad tracks, creating two distinctly different areas. Residential development exists adjacent to and encroaching into the southern portions of the wetland. There is year round ponding in the southern portion of the wetland. The northern portion of the wetland has more woody vegetation and the stream widens.

**CITY OF CORNELIUS  
LOCAL SIGNIFICANT WETLAND (LSW) CRITERIA CHECKLIST**

Wetland Identification: JD-1

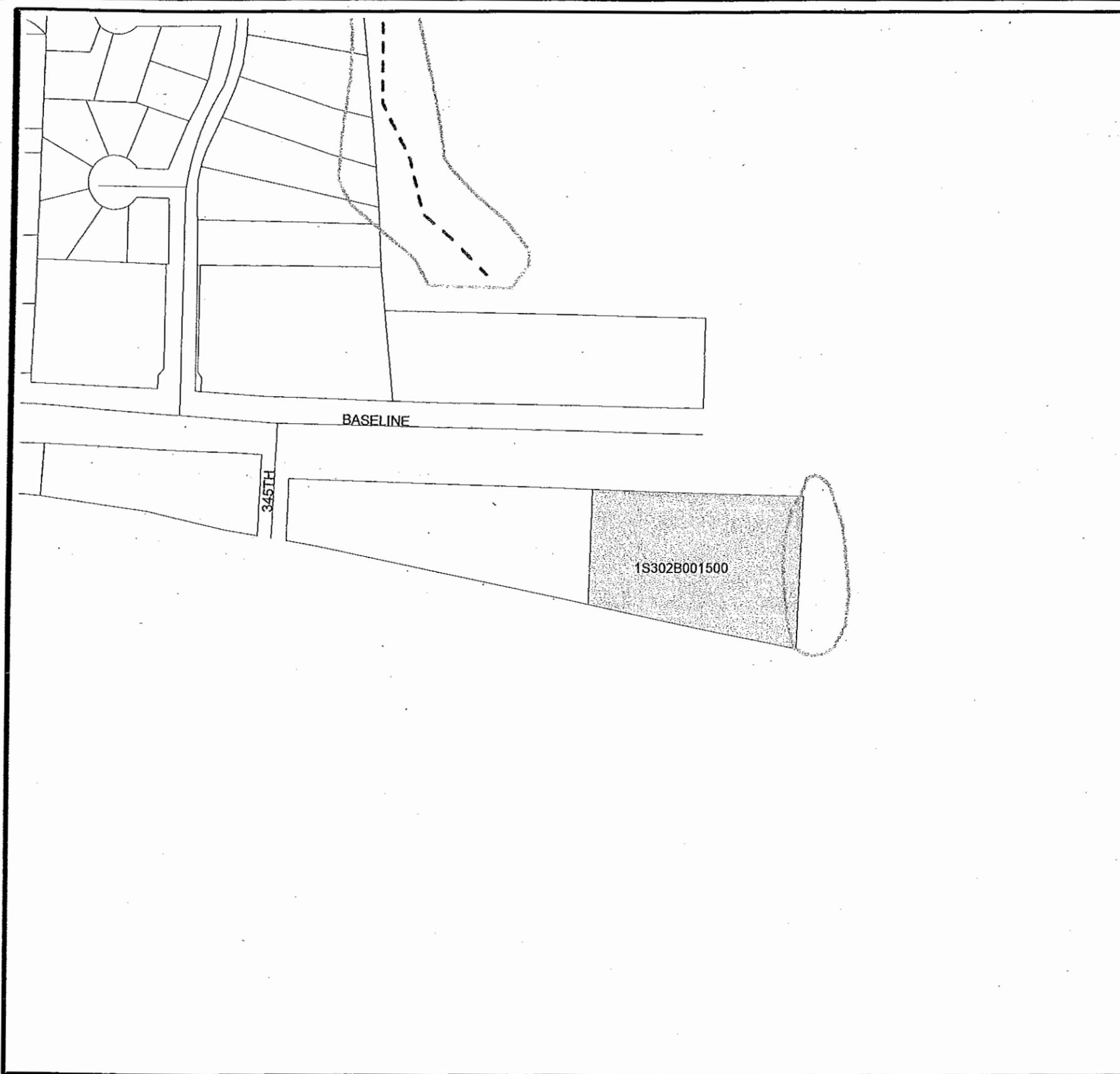
**A. "OUT" Test**

Y	N	Wetlands that score "Yes" in any of the following categories do not proceed to Section B.
	X	Wetlands artificially created entirely from upland that is: <ul style="list-style-type: none"> <li>a. <u>created for the purpose of controlling, storing, or maintaining stormwater;</u></li> <li>b. active surface mining ponds;</li> <li>c. ditches without free and open connection to waters of the state and without fish;</li> <li>d. &lt; 1 acre and unintentionally created from irrigation leak or construction activity;</li> <li>e. of any size and created for the purpose of wastewater treatment, shock watering, settling of sediment, cooling industrial water, or as a golf course hazard.</li> </ul>
	X	Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

**B. "IN" Test**

Y	N	Wetlands that meet ONE OR MORE of the following criteria are LSWs.
X		Wetlands that score the highest rank (stated in italics below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: <ul style="list-style-type: none"> <li>___ <i>diverse</i> wildlife habitat</li> <li>___ <i>intact</i> fish habitat</li> <li>___ <i>intact</i> water quality</li> <li><u>X</u> <i>intact</i> hydrologic control</li> </ul>
X		Wetlands that are rated in the second highest functional category for water quality (called <i>impacted or degraded</i> in OFWAM), <u>AND</u> that occur within 1/4 mile of a water quality-limited stream listed by DEQ.
		Contain one or more rare/uncommon wetland plant communities in Oregon. (most concise list is found as Appendix G in OFWAM)
		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).
		Wetland rates in the second highest functional category for fish habitat (called <i>impacted or degraded</i> in OFWAM), and has a surface water connection to stream segment that is mapped by ODFW as habitat for "indigenous anadromous salmoids".
		OPTIONAL CRITERION (at discretion of local government): Wetland represents a <b>LOCALLY</b> unique plant community.
		OPTIONAL CRITERION (at discretion of local government): Wetland rates highest rank for education potential and there is documented use for educational purposes by a school or organization

\* Wetland does meet the criteria for consideration a significant, per Section B, "IN" Test.



T1S R3W SECTION 02

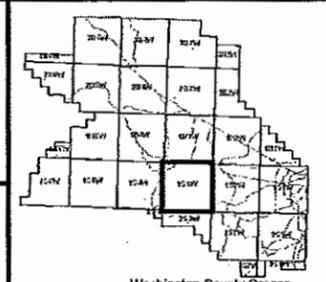
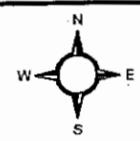
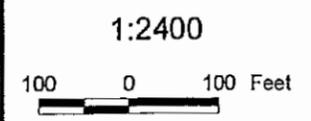
City of Cornelius  
Local  
Wetland Inventory

Wetland Site: JD-2

Legend

- X Sample Plot
- ∩ Railroad
- ∩ Streets
- ∩ Drainage Ditch
- ∩ Stream
- Wetland
- ▨ Adjacent Parcels
- Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.



Washington County Oregon  
Information Current as of :  
November 2002

## CITY OF CORNELIUS LWI COVER SHEET

<b>Wetland Identification:</b> JD-2	<b>Date of Field Verification:</b> May 8, 2002
<b>Investigators:</b> KV, JG (DSL)	<b>Size (acres):</b> @ 0.1
<b>Data Sheets:</b> N/A	<b>Cowardin Classification:</b> PEM
	<b>HGM Classification:</b> Riverine

### LOCATION

Map # 1N3-34DC Tax Lot #'s 105, 107

**Other:** Directly east of the Cornelius Mini-Storage, part of east City boundary.  
**Basin:** Tualatin River

### QUALITY

OAR 141-086-0185 states that a wetland function and condition assessment using the *Oregon Freshwater Wetland Assessment Methodology (OFWAM)* shall be conducted to determine the quality and significance of the wetland. *OFWAM* results for Wetland JD-2 indicate the functions cannot satisfy the Locally Significant Wetland Criteria identified in OAR 141-86-350.

**Soils** Mapped Series: Cove Silty Clay Loam & Labish Mucky Clay

**Hydrology** Hydrologic Source: Surface Flow

### Dominant Wetland Vegetation

<b>TREES</b>	<b>SHRUBS</b>	<b>VINES</b>	<b>HERBS</b>
<i>Cornus stolonifera</i>			<i>Phalaris arundinacea</i>
<i>Spiraea douglasii</i>			<i>Rubus discolor</i>
<i>Salix scouleriana</i>			
<i>Salix sitchensis</i>			

### QUANTITY

The entire JD-2 wetland area is less than 0.5 acres in size. There are seven (7) perennial streams (with associated wetlands/riparian areas) that originate within the City and drain south to Tualatin River. Of the seven perennial streams (with associated wetlands/riparian areas) there are six (6) inventoried wetland areas that have not been filled or piped. These wetlands range in size from between 0.5 – 10 acres in size. The abundance of wetland areas has declined.

### COMMENTS

Soil maps indicate hydric conditions. There was no on-site investigation, because access was not granted. The floodplain has been partially filled as part of a development project (Cornelius Mini-Storage) on the west side of the wetland. From observations off site the wetland appears to be moist or partially moist throughout the year. The majority of this wetland lies to the south and west outside of the City and Urban Growth Boundary.

### Wetland Classifications Codes:

PEM – Palustrine Emergent PFO – Palustrine Forested PSS – Palustrine Scrub-Shrub  
 PUB – Palustrine Unconsolidated Bottom

## CITY OF CORNELIUS

### OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY

Date: May 8, 2002                      Wetland Identification: JD-2  
 Investigators: KV, JG (DSL)

Wildlife Habitat	Fish Habitat - Streams	Fish Habitat - Lakes/Ponds	Water Quality	Hydrologic Control
Q1 - A	Q1 - C		Q1 - A	Q1 - A
Q2 - C	Q2 - B		Q2 - C	Q2 - C
Q3 - C	Q3 - C		Q3 - A	Q3 - B
Q4 - C	Q4 - A		Q4 - B	Q4 - B
Q5 - A	Q5 - C		Q5 - A	Q5 - C
Q6 - B	Q6 - C		Q6 - C	Q6 - B
Q7 - A				Q7 - A
Q8 - C				
Q9 - C				

Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality
Q1 - A	Q1 - A	Q1 - C	Q1 - C	Q1 - B
Q2 - B	Q2 - A	Q2 - B	Q2 - C	Q2 - A
Q3 - C	Q3 - C	Q3 - B	Q3 - C	Q3 - C
Q4 - A	Q4 - B	Q4 - C	Q4 - B	Q4 - B
Q5 - A	Q5 - C	Q5 - C	Q5 - B	Q5 - B
Q6 - C	Q6 - B	Q6 - B	Q6 - B	Q6 - C

<b>Wildlife Habitat</b>	The wetland provides some habitat for wildlife species.
<b>Fish Habitat - Streams</b>	The wetland's fish habitat function is impacted/degraded.
<b>Fish Habitat - Lakes/Ponds</b>	
<b>Water Quality</b>	The wetland's water quality function is impacted.
<b>Hydrologic Control</b>	The wetland's hydrologic control function is impacted/degraded.
<b>Sensitivity to Impact</b>	The wetland is potentially sensitive to future impacts.
<b>Enhancement Potential</b>	The wetland has moderate potential for enhancement.
<b>Education</b>	The wetland is not appropriate for educational use.
<b>Recreation</b>	The wetland is not appropriate for recreation opportunities.
<b>Aesthetic Quality</b>	The wetland is considered not pleasing.

# City of Cornelius Wetland Inventory Summary Sheet

## Wetland Site: JD-2, Jobes Ditch

<u>Function</u>	<u>Evaluation Descriptor</u>	<u>Rationale</u>
<b>Wildlife Habitat</b>	Provides some habitat for wildlife.	Two Cowardin classes present; emergent vegetation is the dominant cover; wetland is connected to a perennial stream; developed uses infringe on the wetland
<b>Fish Habitat</b>	Fish habitat is impacted or degraded.	Stream flows north to south; very little stream-side shade; dominant use at wetlands edge is developed uses; no fish present.
<b>Water Quality</b>	Water quality is impacted.	Primary source of water is surface flow; over 60% of the wetland has vegetation cover; wetland is between 0.5 and 5 acres
<b>Hydrologic Control</b>	Hydrology is impacted or degraded.	All or part of the wetland is located in the 100 yr floodplain; No evidence of flooding during the growing season; wetland area 0.5 - 5 acres; emergent/wet meadow vegetation is dominant cover; dominant downstream uses are agriculture; dominant upstream use is urban.
<b>Sensitivity to Future Impacts</b>	Potentially sensitive to future impacts.	The adjacent stream bank has been modified by human activities; water is not being taken out upstream; no upstream/adjacent reaches are listed as water quality limited; Commercial development, a state highway and a railroad line is within 500 feet of wetland; emergent vegetation and open water ditch are the dominant vegetation cover.
<b>Enhancement Potential</b>	Moderate potential for enhancement	One or more of the functions is impacted or degraded; surface flow ditch is the primary source of water; a state highway has restricted the flow into the wetland; wetland area is

		between 0.5 and 5 acres in size; less than 10% of the wetland's edge is bordered by a vegetative buffer 25 feet or more in width.
<b>Education</b>	Wetland is not appropriate for educational use.	The wetland is not open for direct access or observation; one or two visible safety hazards exist; the wetland does not meet the criteria for provision of diverse fish & wildlife habitat; public access does not exist and cannot easily be created;
<b>Recreation</b>	Wetland is not appropriate for recreational opportunities	No access point, trails or boat launching areas exist; some wildlife habitat does exist; fishing is not applicable activity for this area.
<b>Aesthetic Quality</b>	Wetland is not considered pleasing.	Two Cowardin classes are visible; over 50% of the wetland is visible from private property or public right-of-way; Visual detractors exist (highway, commercial development, RR tracks) and cannot be easily removed; the visual character of the surrounding area has been landscaped or manipulated by people; Unpleasant odors and audible noise from automobile traffic on the highway is present.

### **Narrative Description of Overall Wetland Functions and Conditions**

This small wetland area has been modified by human activity through construction of the state highway on the north and a commercial "mini-storage" development on the west. Both of these developed areas have resulted in filling of the 100-floodplain, which has affected the hydrology and fish/wildlife habitat. Some vegetative enhancement has occurred as part of the landscape plan for the "mini-storage" development.

**CITY OF CORNELIUS**  
**LOCAL SIGNIFICANT WETLAND (LSW) CRITERIA CHECKLIST**

Wetland Identification: JD-2

**A. "OUT" Test**

Y	N	Wetlands that score "Yes" in any of the following categories do not proceed to Section B.
	X	Wetlands artificially created entirely from upland that is: <ol style="list-style-type: none"> <li>a. <u>created for the purpose of controlling, storing, or maintaining stormwater;</u></li> <li>b. active surface mining ponds;</li> <li>c. ditches without free and open connection to waters of the state and without fish;</li> <li>d. &lt; 1 acre and unintentionally created from irrigation leak or construction activity;</li> <li>e. of any size and created for the purpose of wastewater treatment, shock watering, settling of sediment, cooling industrial water, or as a golf course hazard.</li> </ol>
	X	Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

**B. "IN" Test**

Y	N	Wetlands that meet ONE OR MORE of the following criteria are LSWs.
	X	Wetlands that score the highest rank (stated in italics below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: <ul style="list-style-type: none"> <li>___ <i>diverse</i> wildlife habitat</li> <li>___ <i>intact</i> fish habitat</li> <li>___ <i>intact</i> water quality</li> <li>___ <i>intact</i> hydrologic control</li> </ul>
	X	Wetlands that are rated in the second highest functional category for water quality (called <i>impacted or degraded</i> in OFWAM), <u>AND</u> that occur within 1/4 mile of a water quality-limited stream listed by DEQ.
	X	Contain one or more rare/uncommon wetland plant communities in Oregon. (most concise list is found as Appendix G in OFWAM)
	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 rates in the second highest functional category for fish habitat (called <i>impacted or degraded</i> in OFWAM), and has a surface water connection to stream segment that is mapped by ODFW as habitat for "indigenous anadromous salmoids".
	X	OPTIONAL CRITERION (at discretion of local government): Wetland represents a <b>LOCALLY</b> unique plant community.
	X	OPTIONAL CRITERION (at discretion of local government): Wetland rates highest rank for education potential and there is documented use for educational purposes by a school or organization

\* Wetland does NOT meet the criteria for consideration a significant, per Section B, "IN" Test.



## CITY OF CORNELIUS LWI COVER SHEET

<b>Wetland Identification:</b> CC-1	<b>Date of Field Verification:</b> May 8, 2002
<b>Investigators:</b> KV, JG (DSL)	<b>Size (acres):</b> @ 9.0
<b>Data Sheet:</b> CC-1-1	<b>Cowardin Classification:</b> PEM
	<b>HGM Classification:</b> Riverine

### LOCATION

Map # 1N3-33DA	Tax Lot #'s 301, 302, 403	Map # 1N3-34CA	Tax Lot #'s 201, 17300
Map # 1N3-34CB	Tax Lot #'s 100, 200, 600, 400, 401	Map # 1N3-34DB	Tax Lot # 100*
Map # 1N3-34DA	Tax Lot #'s 900, 901*	Map # 1N3-34D	Tax Lot #'s 105, 107*

**Other:** Council Creek corridor, acts as north City boundary.      **Basin:** Council Creek

### QUALITY

OAR 141-086-0185 states that a wetland function and condition assessment using the *Oregon Freshwater Wetland Assessment Methodology (OFWAM)* shall be conducted to determine the quality and significance of the wetland. *OFWAM* results for CC-1 indicate a diverse wildlife habitat and the functions for water quality and hydrology are intact. These results satisfy the Locally Significant Wetland Criteria identified in OAR 141-86-350.

**Soils:**            **Mapped Series:** Cove Silty Clay Loam

**Hydrology:**    **Hydrologic Source:** Surface Flow

### Dominant Wetland Vegetation

TREES	SHRUBS	VINES	HERBS
			<i>Aleopecurus pratensis</i>
			<i>Juncus effusus</i>
			<i>Holcus lanatos</i>
			<i>Festuca arundenacea</i>

### QUANTITY

Wetland CC-1 is associated with the main stem of the Council Creek. Portions of the CC-1 wetlands have been determined and delineated for protection through approved development projects. CC-1 is one of two (2) Palustrine Forested wetlands in the City.

### COMMENTS:

The Council Creek corridor has been broken down into three natural area sub-sections (CC-1A, CC-1B, CC-1C) predicated by the intersection of the stream channel with City streets. Previous wetland determinations/delineations have been completed and approved by DSL for some properties that have been or are proposed for development. DSL Files: Det. # 96-0232, 00-0173, 00138, 00-00139.

### Wetland Classifications Codes:

PEM – Palustrine Emergent    PFO – Palustrine Forested    PSS – Palustrine Scrub-Shrub  
 PUB – Palustrine Unconsolidated Bottom



DIVISION OF STATE LANDS - WETLAND DETERMINATION DATA FORM

County: Washington Date: 5/8/02 File # CC-1  
 Project/Contact: \_\_\_\_\_ Det. by: KU, JG  
 Plant Community: \_\_\_\_\_ Plot # \_\_\_\_\_  
 Plot location: Council Creek mobile Home Park  
 Do normal environ. conditions exist?  Y  N explain: \_\_\_\_\_  
 Has Veg.  Soil  Hydrology  been significantly disturbed?  
 Explain: \_\_\_\_\_

VEGETATION

Dominant Species	Status	% Cover	Dominant Species	Status	% Cover
Tree Stratum			Herb Stratum		
Total Cover: _____			Total Cover: <u>100%</u>		
1. _____			① <u>Alopecurus pratensis</u>	<u>FACW</u>	<u>20</u>
2. _____			② <u>Juncus effusus</u>	<u>FACW</u>	<u>25</u>
3. _____			③ <u>Trifolium lanatum</u>	<u>FAC</u>	<u>30</u>
4. _____			④ <u>Festuca arundinacea</u>	<u>FAC</u>	<u>25</u>
Sapling/Shrub Stratum			5. <u>Rubus calypso</u>	<u>FAC</u>	<u>TR</u>
Total Cover: _____			6. _____		
1. _____			7. _____		
2. _____			8. _____		
3. _____			9. _____		
4. _____			10. _____		

Percent of Dominant Species that are OBL, FACW, FAC (not FAC-): 3/4 75%

Other Notable Species: \_\_\_\_\_

Criteria Met? YES  NO

SOILS

Map Unit Name: Cove Silty Clay Loam Drainage Class: poorly drained  
 Taxonomy: Fine, montmorillonitic On Hydric Soils List?  Y  N  
Vertic Haploaquolls

Depth	Horizon	Matrix Color	Redox Concentrations*	Redox Depletions*	Texture	Structure
<u>0-4</u>		<u>10YR 4/1</u>	<u>7.5YR 3/4</u>	<u>m/m/p</u>		
<u>4-12</u>		<u>10YR 4/1</u>	<u>7.5YR 3/4</u>	<u>m/m/p</u>		

Hydric Soil Indicators:

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol                              | <input type="checkbox"/> Concretions/Nodules (w/in 3"; > 2mm)             |
| <input type="checkbox"/> Histic Epipedon                       | <input type="checkbox"/> High organic content in surface (in Sandy Soils) |
| <input type="checkbox"/> Sulfidic Odor                         | <input type="checkbox"/> Organic streaking (in Sandy Soils)               |
| <input type="checkbox"/> Reducing Conditions (tests positive)  | <input type="checkbox"/> Organic pan (in Sandy Soils)                     |
| <input checked="" type="checkbox"/> Gleyed / low chroma        | <input type="checkbox"/> Listed on Hydric Soils List                      |
| <input checked="" type="checkbox"/> Redox. features (w/in 10") | <input type="checkbox"/> Other: _____                                     |
- Criteria Met? YES  NO  \* abund./size/contrast/color/location (matrix or pores/peds)

HYDROLOGY

Recorded Data

Recorded Data Available: \_\_\_\_\_ Aerial Photos \_\_\_\_\_ Stream gauge \_\_\_\_\_ Other \_\_\_\_\_  
 No Recorded Data Available

Field Data

Depth of inundation: \_\_\_\_\_ Depth to Saturation: surface Depth to free water: 5"

Primary Hydrology Indicators:

- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns

Criteria Met? YES  NO

Secondary Hydrology Indicators (2 or more required):

- Oxidized Root Channels (upper 12")
- Water-stained Leaves
- Local Soil Survey Data
- FAC-Neutral Test
- Other: \_\_\_\_\_

DETERMINATION

WETLAND? YES  NO  Comments: \_\_\_\_\_

Between creek and PEM wetland is a PSC wetland

## CITY OF CORNELIUS

### OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY

Date: May 8, 2002, April 2000, November 5, 1999  
 Investigators: KV, JG (DSL)

Wetland Identification: CC-1

Wildlife Habitat	Fish Habitat - Streams	Fish Habitat - Lakes/Ponds	Water Quality	Hydrologic Control
Q1 - A	Q1 - A		Q1 - A	Q1 - A
Q2 - A	Q2 - A		Q2 - A	Q2 - A
Q3 - B	Q3 - A		Q3 - A	Q3 - A
Q4 - B	Q4 - C		Q4 - A	Q4 - C
Q5 - A	Q5 - C		Q5 - A	Q5 - A
Q6 - A	Q6 - B		Q6 - A	Q6 - B
Q7 - B				Q7 - B
Q8 - C				
Q9 - B				

Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality
Q1 - A	Q1 - A	Q1 - B	Q1 - C	Q1 - A
Q2 - A	Q2 - A	Q2 - C	Q2 - C	Q2 - B
Q3 - A	Q3 - A	Q3 - B	Q3 - A	Q3 - B
Q4 - A	Q4 - A	Q4 - B	Q4 - A	Q4 - B
Q5 - A	Q5 - B	Q5 - C	Q5 - A	Q5 - A
Q6 - A	Q6 - C	Q6 - B	Q6 - B	Q6 - A

<b>Wildlife Habitat</b>	The wetland provides diverse habitat for wildlife species.
<b>Fish Habitat - Streams</b>	The wetland's fish habitat function is impacted/degraded.
<b>Fish Habitat - Lakes/Ponds</b>	N/A
<b>Water Quality</b>	The wetland's water quality function is intact.
<b>Hydrologic Control</b>	The wetland's hydrologic control function is intact.
<b>Sensitivity to Impact</b>	The wetland is sensitive to future impacts.
<b>Enhancement Potential</b>	The wetland has moderate potential for enhancement.
<b>Education</b>	The wetland is not appropriate for educational use.
<b>Recreation</b>	The wetland is not appropriate for recreation opportunities.
<b>Aesthetic Quality</b>	The wetland is considered pleasing.

# City of Cornelius Wetland Inventory Summary Sheet

Wetland Site: CC-1, Council Creek Main Stem

<u>Function</u>	<u>Evaluation Descriptor</u>	<u>Rationale</u>
<b>Wildlife Habitat</b>	Provides diverse habitat.	Three Cowardin classes present; woody vegetation is the dominant cover; wetland is connected to a perennial stream; developed uses are the dominant uses abutting the wetland.
<b>Fish Habitat</b>	Habitat has been impacted or degraded.	More than 75% of stream is shaded; the stream channel is natural; more than 25% of the stream contain floating submerged vegetation; Council Creek is water quality limited (DEQ).
<b>Water Quality</b>	Water Quality is intact.	Council Creek has been indentified as water quality limited by DEQ; developed uses are the dominant uses adjacent to the wetland.
<b>Hydrologic Control</b>	Hydrology is intact.	All or part of the wetland is located in the 100 yr floodplain; wetland area > 5 acres; wetland outlet has unrestricted flow; woody vegetation is dominant cover; dominant downstream uses are agriculture; dominant upstream use is urban/agriculture.
<b>Sensitivity to Future Impacts</b>	Wetland is sensitive to future impacts.	The flow upstream has been modified by human activities (irrigation reservoirs); water is being taken out upstream for irrigation, etc.; entire stream is listed as water quality limited; residential use is adjacent to the wetlands.
<b>Enhancement Potential</b>	Moderate enhancement potential.	The fish habitat and water quality functions are impacted or degraded; surface flow stream is the primary source of water; flow into wetland is not restricted; between 10%-40% of the wetland's edge is bordered by a vegetative buffer 25 feet or more in width.

<b>Education</b>	Education is not appropriate at this time.	The wetland does not have a public access or an observation area; one or two visible safety hazards exist in the form of collector streets; the wetland provides diverse wildlife habitat; fish habitat is degraded or impacted; no ADA access exists.
<b>Recreation</b>	Not appropriate at this time.	No maintained public access point exists; no public trails or boat launching areas exist; diverse wildlife habitat exists; fishing is allowed.
<b>Aesthetic Quality</b>	Wetland is considered pleasing.	Three Cowardin classes are visible; there is no maintained viewing area; one or two visual detractors exist (City streets); the visual character of the surrounding area has been landscaped or manipulated by people; the wetland is adjacent to residential uses so some odors and noise with conflict with natural sounds and smells.

**Narrative Description of Overall Wetland Functions and Conditions**

Council Creek is a perennial stream that bisects urban and agricultural lands prior to reaching the City of Cornelius. The corridor along Council Creek provides diverse wildlife habitat with three Cowardin classes visible. The stream is listed as water quality limited by Oregon Department of Environmental Quality. The wetland water quality functions in Cornelius are intact. Portions of the Council Creek corridor along Cornelius have been or are being considered for preservation as parks and greenspaces.

**CITY OF CORNELIUS  
LOCAL SIGNIFICANT WETLAND (LSW) CRITERIA CHECKLIST**

Wetland Identification: CC-1

**A. "OUT" Test**

Y	N	Wetlands that score "Yes" in any of the following categories do not proceed to Section B.
	X	Wetlands artificially created entirely from upland that is: <ul style="list-style-type: none"> <li>a. <u>created for the purpose of controlling, storing, or maintaining stormwater;</u></li> <li>b. active surface mining ponds;</li> <li>c. ditches without free and open connection to waters of the state and without fish;</li> <li>d. &lt; 1 acre and unintentionally created from irrigation leak or construction activity;</li> <li>e. of any size and created for the purpose of wastewater treatment, shock watering, settling of sediment, cooling industrial water, or as a golf course hazard.</li> </ul>
	X	Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

**B. "IN" Test**

Y	N	Wetlands that meet ONE OR MORE of the following criteria are LSWs.
X		Wetlands that score the highest rank (stated in italics below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: <ul style="list-style-type: none"> <li><u>X</u> <i>diverse</i> wildlife habitat</li> <li><u>      </u> <i>intact</i> fish habitat</li> <li><u>X</u> <i>intact</i> water quality</li> <li><u>X</u> <i>intact</i> hydrologic control</li> </ul>
		Wetlands that are rated in the second highest functional category for water quality (called <i>impacted or degraded</i> in OFWAM), <u>AND</u> that occur within 1/4 mile of a water quality-limited stream listed by DEQ.
		Contain one or more rare/uncommon wetland plant communities in Oregon. (most concise list is found as Appendix G in OFWAM)
		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).
		Wetland rates in the second highest functional category for fish habitat (called <i>impacted or degraded</i> in OFWAM), and has a surface water connection to stream segment that is mapped by ODFW as habitat for "indigenous anadromous salmonids".
		OPTIONAL CRITERION (at discretion of local government): Wetland represents a <b>LOCALLY</b> unique plant community.
		OPTIONAL CRITERION (at discretion of local government): Wetland rates highest rank for education potential and there is documented use for educational purposes by a school or organization

\* Wetland does meet the criteria for consideration a significant, per Section B, "IN" Test.

T1N R3W SECTION 34

City of Cornelius  
Local  
Wetland Inventory

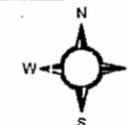
Wetland Site: CCDU-1

Legend

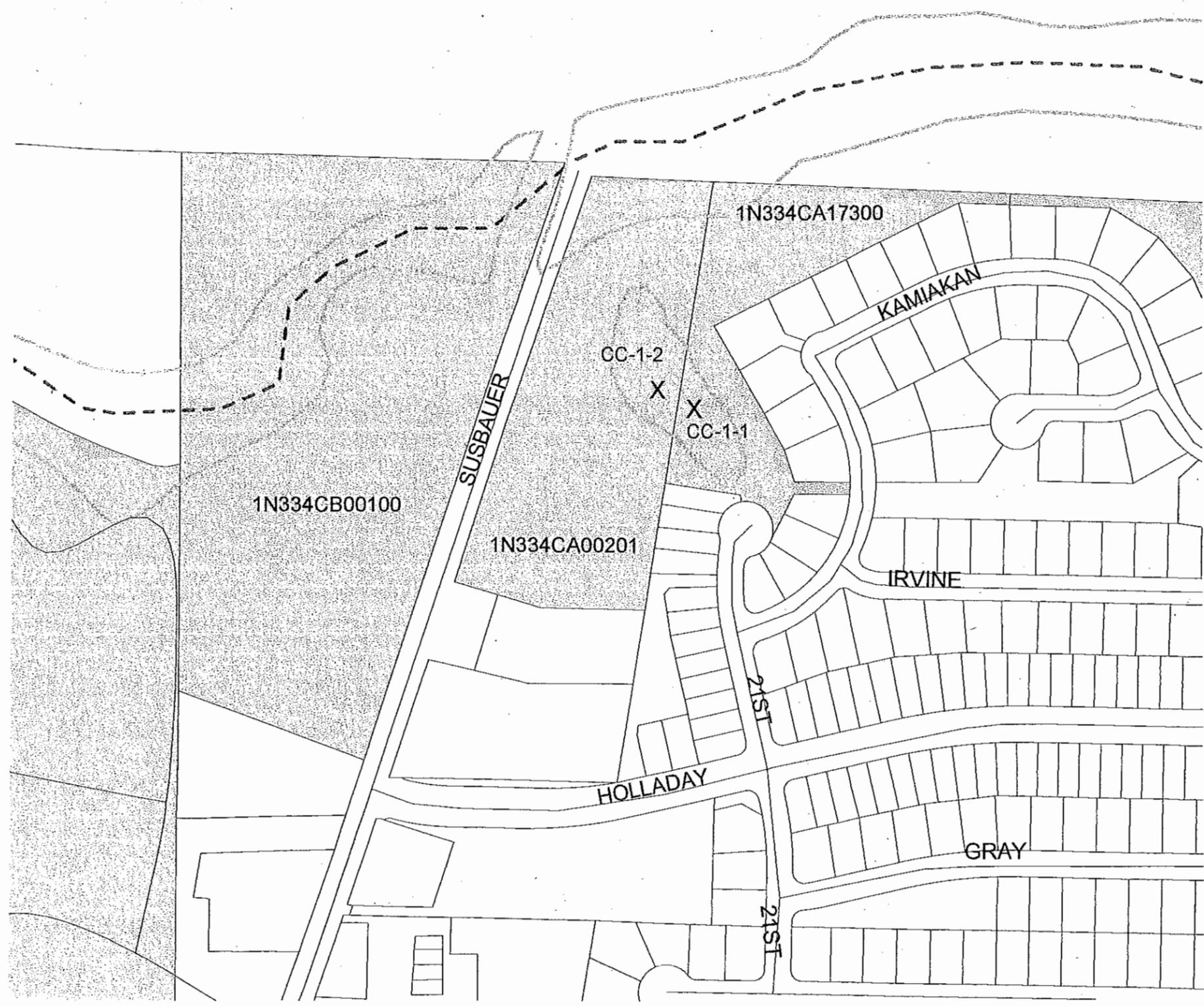
- X Sample Plot
- ⚡ Railroad
- ⚡ Streets
- ⚡ Drainage Ditch
- ⚡ Stream
- Wetland
- ▨ Adjacent Parcels
- Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

1:2400  
50 0 50 100 Feet



Washington County Oregon  
Information Current as of:  
November 2002



## CITY OF CORNELIUS LWI COVER SHEET

<b>Wetland Identification:</b> CCDU-1	<b>Date of Field Verification:</b> May 8, 2002
<b>Investigators:</b> KV, JG (DSL)	<b>Size (acres):</b> @ 0.5
<b>Data Sheet:</b> CCDU-1-1, CCDU-1-2	<b>Cowardin Classification:</b> PEM
	<b>HGM Classification:</b> Slope Wetland

### LOCATION

**Legal:** Map # 1S3-34CA Tax Lot #'s 17300 (Tract G), 201

**Other:** North of terminus of N. 21<sup>st</sup> Avenue in Council Creek PUD.

**Basin:** Council Creek

### QUALITY

OAR 141-086-0185 states that a wetland function and condition assessment using the *Oregon Freshwater Wetland Assessment Methodology (OFWAM)* shall be conducted to determine the quality and significance of the wetland. *OFWAM* results for CCDU-1 indicate the wetland has been determined. These results satisfy the Locally Significant Wetland Criteria identified in OAR 141-86-350.

**Soils:** Mapped Series: Verboort Silty Clay Loam

**Hydrology:** Hydrologic Source: Surface Flow

### Dominant Wetland Vegetation

TREES	SHRUBS	VINES	HERBS
			<i>Phalaris arundinacea</i>
			<i>Alopecurus pratensis</i>

### QUANTITY

This wetland area is the only one identified within the current City Boundary that has not been modified by development and contributes to Council Creek.

### COMMENTS:

Site is a modified surface water ditch. Vegetation dominated by *Phalaris arundinacea* and *Alopecurus pratensis*.

### Wetland Classifications Codes:

PEM -- Palustrine Emergent    PFO -- Palustrine Forested    PSS -- Palustrine Scrub-Shrub  
 PUB -- Palustrine Unconsolidated Bottom

# CITY OF CORNELIUS WETLAND DETERMINATION FORM

Project: City of Cornelius	Site: CCDU-1	Plot: CCDU-1-1
Investigators: KV, JG (DSL)	Watershed: Council Creek	Date: May 8, 2002
County: Washington	Township/Range: 1N 3W	Section: 34CA

**VEGETATION** **Criteria Met: YES**

**Dominant Species**

Tree Stratum	Shrub Stratum	Herbaceous Stratum
		<i>Alopecurus pratensis</i> FACW 55%
		<i>Agrostis tensis</i> FAC 25%
		<i>Festuca pratensis</i> FACU+ 20%

Percent of dominant species FAC, FACW, or OBL: 2/3 66%

**SOILS** **Criteria Met: YES**

<b>Mapped Series:</b>	Verboort Silty Clay Loam	<b>Hydric Soil List:</b>	Yes
<b>Classification:</b>	Fine, mixed, mesic, typic Argialbolls	<b>Drainage Class:</b>	Poorly drained

Depth (In.)	Matrix Color	Redox Concentrations	Redox Depletions	Texture*/Structure
0-5	10YR 4/2 > 4/3	10YR 4/6	c/m/d	
5-14	10YR 4/2	10YR 4/6	m/f/d	

**Hydric Soil Indicators:**

Redox feature w/10"

**HYDROLOGY** **Criteria Met: YES**

**Primary Indicators**

Inundated (Yes/No): No  
 Depth of Inundation:  
 Depth of Free Water  
 Depth of Saturation (upper 12 inches): No  
 Drainage Patterns: Yes  
 Water Marks:  
 Drift Lines  
 Sediment Deposits:

**Secondary Indicators**

Oxidized Root Channels:  
 Other:

**COMMENTS:** Council Creek and it's floodplain form the northern City and urban growth boundary for Cornelius. This site plot is located in Tract G of the Council Creek PUD. Swale that has been altered to contain residential run-off. Fill slopes on either side of drainage.

DIVISION OF STATE LANDS - WETLAND DETERMINATION DATA FORM

County: Washington Date: 5/8/02 File # CCDU-1  
 Project/Contact: \_\_\_\_\_ Det. by: KV, JL  
 Plant Community: \_\_\_\_\_ Plot # 2  
 Plot location: swale south of Council Creek  
 Do normal environ. conditions exist? Y  N  Explain: \_\_\_\_\_  
 Has Veg. Soil Hydrology been significantly disturbed?  
 Explain: \_\_\_\_\_

VEGETATION

Dominant Species	Status	% Cover	Dominant Species	Status	% Cover
Tree Stratum			Herb Stratum		
Total Cover: _____			Total Cover: <u>100%</u>		
1. _____			1. _____		
2. _____			2. <u>Phalaris arundinacea (70%) 100</u>		
3. _____			3. _____		
4. _____			4. _____		
Sapling/Shrub Stratum			5. _____		
Total Cover: _____			6. _____		
1. _____			7. _____		
2. _____			8. _____		
3. _____			9. _____		
4. _____			10. _____		
5. _____					

Percent of Dominant Species that are OBL, FACW, FAC (not FAC-): 100%  
 Other Notable Species: \_\_\_\_\_  
 Criteria Met? YES  NO

SOILS

Map Unit Name: Verbaert Silty Clay Loam Drainage Class: poorly drained  
 Taxonomy: Fine, mixed, mesic, typic Argialbolls On Hydric Soils List? Y  N

Depth	Horizon	Matrix Color	Redox Concentrations*	Redox Depletions*	Texture	Structure
<u>0-5</u>	<u>10YR</u>	<u>3/2</u>				
<u>5-9</u>	<u>10YR</u>	<u>3/2 + 4/2</u>	<u>(80% 3/2)</u>			
<u>9-12</u>	<u>10YR</u>	<u>4/2 + 3/2</u>	<u>10YR 4/4</u>	<u>C/F/F</u>		
			<u>(80% 4/2)</u>			

Hydric Soil Indicators:

- |   |   |
|---|---|
| <input type="checkbox"/> Histosol   | <input type="checkbox"/> Concretions/Nodules (w/in 3"; > 2mm)             |
| <input type="checkbox"/> Histic Epipedon  | <input type="checkbox"/> High organic content in surface (in Sandy Soils) |
| <input type="checkbox"/> Sulfidic Odor  | <input type="checkbox"/> Organic streaking (in Sandy Soils)               |
| <input type="checkbox"/> Reducing Conditions (tests positive)                     | <input type="checkbox"/> Organic pan (in Sandy Soils)                     |
| <input type="checkbox"/> Gleyed   | <input type="checkbox"/> Listed on Hydric Soils List                      |
| <input checked="" type="checkbox"/> Redox. features (w/in 10")                    | <input type="checkbox"/> Other: _____                                     |
| Criteria Met? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> | * abund./size/contrast/color/location (matrix or pores/peds)              |

HYDROLOGY

Recorded Data  
 Recorded Data Available: \_\_\_\_\_ Aerial Photos  Stream gauge  Other  
 No Recorded Data Available  
 Field Data  
 Depth of inundation: \_\_\_\_\_ Depth to Saturation: \_\_\_\_\_ Depth to free water: \_\_\_\_\_

Primary Hydrology Indicators:

- |   |   |
|---|---|
| <input type="checkbox"/> Inundated  | <input type="checkbox"/> Secondary Hydrology Indicators (2 or more required): |
| <input type="checkbox"/> Saturated in upper 12 inches                             | <input type="checkbox"/> Oxidized Root Channels (upper 12")                   |
| <input type="checkbox"/> Water Marks  | <input type="checkbox"/> Water-stained Leaves                                 |
| <input type="checkbox"/> Drift Lines  | <input type="checkbox"/> Local Soil Survey Data                               |
| <input type="checkbox"/> Sediment Deposits  | <input type="checkbox"/> FAC-Neutral Test                                     |
| <input checked="" type="checkbox"/> Drainage Patterns                             | <input type="checkbox"/> Other: _____   |
| Criteria Met? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> |   |

DETERMINATION

ETLAND? YES  NO  Comments: Swale that has been altered to contain residential run off. This part of swale not disturbed as upper part of swale (see plot)



DIVISION OF STATE LANDS - WETLAND DETERMINATION DATA FORM

County: Washington Date: 5/8/02 File # CCDU-1  
 Project/Contact: \_\_\_\_\_ Det. by: KV, JG  
 Plant Community: \_\_\_\_\_ Plot # 1  
 Plot location: small south of Council Creek  
 Do normal environ. conditions exist? Y  N  Explain: \_\_\_\_\_  
 Has Veg.  Soil  Hydrology  been significantly disturbed?  
 Explain: Fill slope on either side of drainage

VEGETATION

Dominant Species	Status	% Cover	Dominant Species	Status	% Cover
<u>Tree Stratum</u>			<u>Herb Stratum</u>		
Total Cover: _____			Total Cover: <u>100%</u>		
1. _____			① <u>Alpeccurus pratensis</u>	<u>FACW</u>	<u>55</u>
2. _____			② <u>Agrostis tenuis</u>	<u>FAC</u>	<u>25</u>
3. _____			③ <u>Festuca pratensis</u>	<u>FACU</u>	<u>20</u>
4. _____			4. _____		
<u>Sapling/Shrub Stratum</u>			5. _____		
Total Cover: _____			6. _____		
1. _____			7. _____		
2. _____			8. _____		
3. _____			9. _____		
4. _____			10. _____		
5. _____					

Percent of Dominant Species that are OBL, FACW, FAC (not FAC-): 2/3 66%  
 Other Notable Species: \_\_\_\_\_  
 Criteria Met? YES  NO

SOILS

Map Unit Name: Verbaant Silty Clay loam Drainage Class: poorly drained  
 Taxonomy: Fine, mixed, mesic, typic Argialbolls On Hydric Soils List? Y  N

Depth	Horizon	Matrix Color	Redox Concentrations *	Redox Depletions *	Texture	Structure
<u>0-5</u>		<u>10YR 4/2 = 4/3</u>	<u>10YR 4/6</u>	<u>C/m/D</u>		
<u>5-14</u>		<u>10YR 4/2</u>	<u>10YR 4/6</u>	<u>m/F/D</u>		

Hydric Soil Indicators:

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol                              | <input type="checkbox"/> Concretions/Nodules (w/in 3"; > 2mm)             |
| <input type="checkbox"/> Histic Epipedon                       | <input type="checkbox"/> High organic content in surface (in Sandy Soils) |
| <input type="checkbox"/> Sulfidic Odor                         | <input type="checkbox"/> Organic streaking (in Sandy Soils)               |
| <input type="checkbox"/> Reducing Conditions (tests positive)  | <input type="checkbox"/> Organic pan (in Sandy Soils)                     |
| <input type="checkbox"/> Gleyed                                | <input type="checkbox"/> Listed on Hydric Soils List                      |
| <input checked="" type="checkbox"/> Redox. features (w/in 10") | <input type="checkbox"/> Other: _____                                     |
- Criteria Met? YES  NO  \* abund./size/contrast/color/location (matrix or pores/peds)

HYDROLOGY

Recorded Data  
 Recorded Data Available: \_\_\_\_\_ Aerial Photos  Stream gauge  Other  
 No Recorded Data Available  
Field Data  
 Depth of inundation: \_\_\_\_\_ Depth to Saturation: \_\_\_\_\_ Depth to free water: \_\_\_\_\_

- |   |   |
|---|---|
| <u>Primary Hydrology Indicators:</u>                  | <u>Secondary Hydrology Indicators (2 or more required):</u> |
| <input type="checkbox"/> Inundated                    | <input type="checkbox"/> Oxidized Root Channels (upper 12") |
| <input type="checkbox"/> Saturated in upper 12 inches | <input type="checkbox"/> Water-stained Leaves               |
| <input type="checkbox"/> Water Marks                  | <input type="checkbox"/> Local Soil Survey Data             |
| <input type="checkbox"/> Drift Lines                  | <input type="checkbox"/> FAC-Neutral Test                   |
| <input type="checkbox"/> Sediment Deposits            | <input type="checkbox"/> Other: _____                       |
| <input checked="" type="checkbox"/> Drainage Patterns |   |
- Criteria Met? YES  NO

DETERMINATION

WETLAND? YES  NO  Comments: Swale that has been altered to contain residential runoff. Fill slopes on either side of drainage.

**CITY OF CORNELIUS**

**OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY**

Date: May 8, 2002

Wetland Identification: CCDU-1

Investigators: KV, JG (DSL)

Wildlife Habitat	Fish Habitat - Streams	Fish Habitat - Lakes/Ponds	Water Quality	Hydrologic Control
Q1 - C	Q1 - C		Q1 - A	Q1 - A
Q2 - C	Q2 - C		Q2 - C	Q2 - C
Q3 - C	Q3 - C		Q3 - A	Q3 - B
Q4 - C	Q4 - C		Q4 - B	Q4 - C
Q5 - A	Q5 - C		Q5 - A	Q5 - C
Q6 - A	Q6 - C		Q6 - A	Q6 - C
Q7 - C				Q7 - A
Q8 - C				
Q9 - C				

Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality
Q1 - A	Q1 - B	Q1 - B	Q1 - A	Q1 - C
Q2 - B	Q2 - A	Q2 - A	Q2 - C	Q2 - A
Q3 - A	Q3 - C	Q3 - B	Q3 - A	Q3 - A
Q4 - A	Q4 - B	Q4 - A	Q4 - B	Q4 - B
Q5 - A	Q5 - C	Q5 - A	Q5 - B	Q5 - B
Q6 - B	Q6 - B	Q6 - A	Q6 - B	Q6 - B

<b>Wildlife Habitat</b>	The wetland provides habitat for some wildlife species.
<b>Fish Habitat - Streams</b>	The wetland's fish habitat function is lost or not present.
<b>Fish Habitat - Lakes/Ponds</b>	N/A
<b>Water Quality</b>	The wetland's water quality function is impacted/degraded.
<b>Hydrologic Control</b>	The wetland's hydrologic control function is lost or not present.
<b>Sensitivity to Impact</b>	The wetland is potentially sensitive to future impacts.
<b>Enhancement Potential</b>	The wetland has little potential for enhancement.
<b>Education</b>	The wetland has potential for educational use.
<b>Recreation</b>	The wetland has potential for recreation opportunities.
<b>Aesthetic Quality</b>	The wetland is considered moderately pleasing.

# City of Cornelius Wetland Inventory Summary Sheet

## Wetland Site: CCDU-1, Council Creek

<u>Function</u>	<u>Evaluation Descriptor</u>	<u>Rationale</u>
<b>Wildlife Habitat</b>	Provides some habitat for wildlife.	One Cowardin classes present; emergent vegetation is the dominant cover; wetland is connected to a intermittent drainage ditch; developed uses surround the wetland
<b>Fish Habitat</b>	Fish habitat is lost or not present.	Modified drainage ditch of the Council Creek PUD; no stream-side shade; dominant use at wetlands edge is developed uses; no fish present.
<b>Water Quality</b>	Water quality is impacted or degraded.	Primary source of water is surface flow; over 60% of the wetland has vegetation cover; wetland is between 0.5 and 5 acres.
<b>Hydrologic Control</b>	Hydrology is lost or not present.	Part of the wetland is located in the 100 yr floodplain; No evidence of flooding during the growing season; wetland area 0.5 - 5 acres; emergent/wet meadow vegetation is dominant cover; dominant downstream uses are agriculture; dominant upstream use is urban.
<b>Sensitivity to Future Impacts</b>	Potentially sensitive to future impacts.	The adjacent stream bank has been modified by human activities; water is not being taken out upstream; Council Creek an adjacent reach is listed as water quality limited; Residential PUD is within 500 feet of wetland; emergent (herbaceous) vegetation is the dominant vegetation cover.
<b>Enhancement Potential</b>	Little potential for enhancement	One function (fish habitat) is lost or not present; surface flow ditch is the primary source of water; residential development has piped and restricted the flow into the wetland; wetland area is between 0.5 and 5 acres ins size; less than 10% of the wetland's edge is

**CITY OF CORNELIUS  
LOCAL SIGNIFICANT WETLAND (LSW) CRITERIA CHECKLIST**

**Wetland Identification: CCDU-1**

**A. "OUT" Test**

Y	N	Wetlands that score "Yes" in any of the following categories do not proceed to Section B.
	X	Wetlands artificially created entirely from upland that is: <ul style="list-style-type: none"> <li>a. <u>created for the purpose of controlling, storing, or maintaining stormwater;</u></li> <li>b. active surface mining ponds;</li> <li>c. ditches without free and open connection to waters of the state and without fish;</li> <li>d. &lt; 1 acre and unintentionally created from irrigation leak or construction activity;</li> <li>e. of any size and created for the purpose of wastewater treatment, shock watering, settling of sediment, cooling industrial water, or as a golf course hazard.</li> </ul>
	X	Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

**B. "IN" Test**

Y	N	Wetlands that meet ONE OR MORE of the following criteria are LSWs.
		Wetlands that score the highest rank (stated in italics below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: <ul style="list-style-type: none"> <li><u>N</u> <i>diverse</i> wildlife habitat</li> <li><u>N</u> <i>intact</i> fish habitat</li> <li><u>N</u> <i>intact</i> water quality</li> <li><u>N</u> <i>intact</i> hydrologic control</li> </ul>
X		Wetlands that are rated in the second highest functional category for water quality (called <i>impacted or degraded</i> in OFWAM), <u>AND</u> that occur within 1/4 mile of a water quality-limited stream listed by DEQ.
		Contain one or more rare/uncommon wetland plant communities in Oregon. (most concise list is found as Appendix G in OFWAM)
		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).
		Wetland rates in the second highest functional category for fish habitat (called <i>impacted or degraded</i> in OFWAM), and has a surface water connection to stream segment that is mapped by ODFW as habitat for "indigenous anadromous salmonids".
		OPTIONAL CRITERION (at discretion of local government): Wetland represents a <b>LOCALLY</b> unique plant community.
		OPTIONAL CRITERION (at discretion of local government): Wetland rates highest rank for education potential and there is documented use for educational purposes by a school or organization

\* Wetland does meet the criteria for consideration as significant, per Section B, "IN" Test.

T1S R3W SECTION 04

City of Cornelius  
Local  
Wetland Inventory

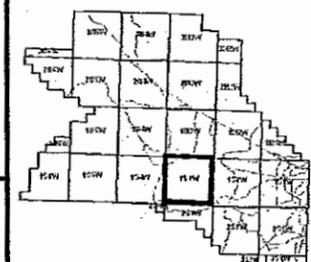
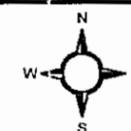
Wetland Site: TD-1

Legend

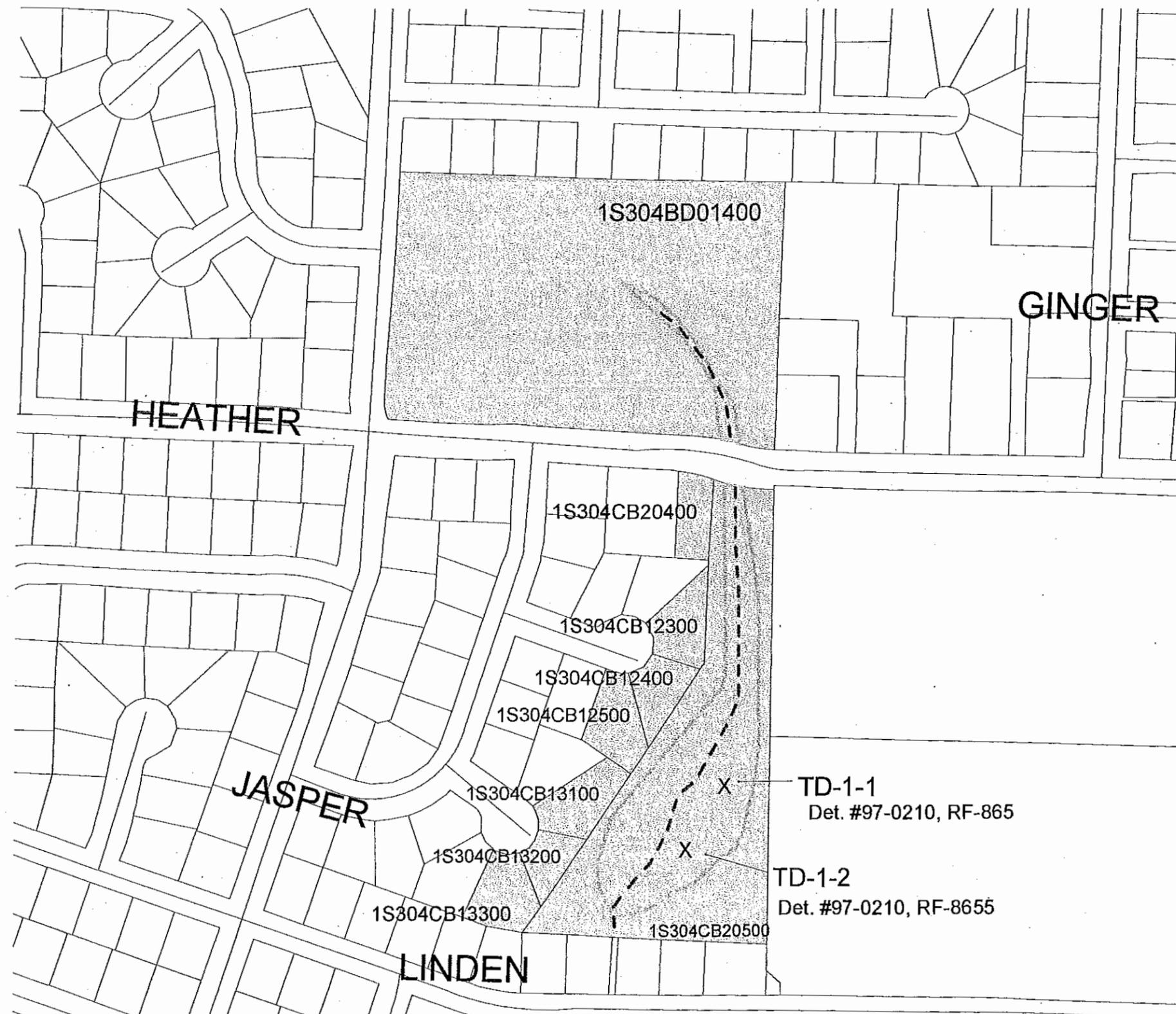
- X Sample Plot
- ∩ Railroad
- ∩ Streets
- ∩ Drainage Ditch
- ∩ Stream
- Wetland
- ▨ Adjacent Parcels
- Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

1:2400  
50 0 50 100 Feet



Washington County Oregon  
Information Current as of:  
November 2002



**CITY OF CORNELIUS LWI COVER SHEET**

<b>Wetland Identification:</b> TD-1	<b>Date of Field Verification:</b> May 8, 2002
<b>Investigators:</b> KV, JG (DSL)	<b>Size (acres):</b> @ 2.20
<b>Data Sheet:</b> TD-1-1, TD-1-2	<b>Cowardin Classification:</b> PEM
	<b>HGM Classification:</b> Riverine

**LOCATION**

Map # 1S3-04CB      Tax Lot # 205 (Tract A)

**Other:**            West of Harleman Park between S. Heather and Linden Streets.

**Basin:**            Tualatin River

**QUALITY**

OAR 141-086-0185 states that a wetland function and condition assessment using the *Oregon Freshwater Wetland Assessment Methodology (OFWAM)* shall be conducted to determine the quality and significance of the wetland. *OFWAM* results for Wetland TD-1 rates in the second highest functional category for fish habitat (called impacted or degraded), and has surface water connection to stream segment that is mapped by ODFW as habitat for "indigenous anadromous salmonids". This satisfies the Locally Significant Wetland Criteria identified in OAR 141-86-350.

**Soils:**                    **Mapped Series:** Verboort Silty Clay Loam

**Hydrology:**            **Hydrologic Source:** Surface Flow

**Dominant Wetland Vegetation**

<b>TREES</b>	<b>SHRUBS</b>	<b>VINES</b>	<b>HERBS</b>
			<i>Phalaris arundinacea</i>
			<i>Festuca arundinacea</i>
			<i>Alopecurus pratensis</i>

**QUANTITY**

This wetland is bisected by a stream, which has been piped upstream and daylighted in TD-1. This wetland area is less than three (3) acres in size and is only one of two (2) wetland areas inventoried that have not been filled along this drainage.

**COMMENTS:**

TD-1 is a DSL impact and mitigation site, RF-8655, 97-210, and 02-0401. Mitigation is of the emergent wetland.

**Wetland Classifications Codes:**

PEM – Palustrine Emergent    PFO – Palustrine Forested    PSS – Palustrine Scrub-Shrub  
 PUB – Palustrine Unconsolidated Bottom

**CITY OF CORNELIUS  
WETLAND DETERMINATION FORM**

Project: City of Cornelius	Site: TD-1	Plot: TD-1-1
Investigators: KV, JG (DSL)	Watershed: Tualatin River	Date: May 8, 2002
County: Washington	Township/Range: 1S 3W	Section: 04CB

**VEGETATION Criteria Met: YES**

**Dominant Species**

Tree Stratum	Shrub Stratum	Herbaceous Stratum
		<i>Phalaris arundinacea</i> FACW 30%
		<i>Festuca arundinacea</i> FAC- 25%
		<i>Alopecurus pratensis</i> FACW 30%

Percent of dominant species FAC, FACW, or OBL: 2/3 66%

**SOILS Criteria Met: YES**

Mapped Series: Verboort Silty Clay Loam      Hydric Soil List: Yes  
 Classification: Fine, mixed, mesic, typic Argialbolls      Drainage Class: Poorly drained

Depth (In.)	Matrix Color	Redox Concentrations	Redox Depletions	Texture*/Structure
0-5	10YR 3/2	10YR 3/4	c/f/d	
5-14	2.5y 2.5/1			

**Hydric Soil Indicators:**

Gleyed/low chroma  
 Redox feature w/10"

**HYDROLOGY Criteria Met: YES**

**Primary Indicators**

Inundated (Yes/No):  
 Depth of Inundation:  
 Depth of Free Water  
 Depth of Saturation:  
 Drainage Patterns:  
 Water Marks:  
 Drift Lines  
 Sediment Deposits:

**Secondary Indicators**

Oxidized Root Channels: Yes  
 FAC-Neutral Test: Yes

**COMMENTS:** Open mowed field area west of Harleman Park and Echo Shaw School.

DIVISION OF STATE LANDS - WETLAND DETERMINATION DATA FORM

County: Washington Date: 5/8/02 File # TD-1  
 Project/Contact: \_\_\_\_\_ Det. by: KU, JG  
 Plant Community: \_\_\_\_\_ Plot # \_\_\_\_\_  
 Plot Location: manure field by school  
 Do normal environ. conditions exist? Y  N  Explain: may be part disturbance  
 Has Veg.  Soil  Hydrology  been significantly disturbed?  
 Explain: \_\_\_\_\_

VEGETATION

Dominant Species	Status	% Cover	Dominant Species	Status	% Cover
Tree Stratum			Herb Stratum		
Total Cover: _____			Total Cover: <u>100</u>		
1. _____			1. _____		
2. _____			② <u>Phalaris arundinacea</u>	<u>FACW</u>	<u>30</u>
3. _____			③ <u>Festuca arundinacea</u>	<u>FAC-</u>	<u>30</u>
4. _____			④ <u>Alopecurus pratensis</u>	<u>FACW</u>	<u>30</u>
Sapling/Shrub Stratum			5. <u>Trientalis pratensis</u>	<u>FACU</u>	<u>5</u>
Total Cover: _____			6. <u>Carex sp.</u>	<u>J</u>	<u>5</u>
1. _____			7. _____		
2. _____			8. _____		
3. _____			9. _____		
4. _____			10. _____		
5. _____					

Percent of Dominant Species that are OBL, FACW, FAC (not FAC-): 2/3 66%  
 Other Notable Species: \_\_\_\_\_  
 Criteria Met? YES  NO

SOILS

Map Unit Name: Verboort Silty clay loam Drainage Class: poorly drained  
 Taxonomy: fine, mixed, mesic, typic Argialbolls On Hydric Soils List? Y  N

Depth	Horizon	Matrix Color	Redox Concentrations*	Redox Depletions*	Texture	Structure
<u>0-5</u>		<u>10YR 3/2</u>	<u>10YR 3/4</u>	<u>c1f/d</u>		
<u>5-14</u>		<u>2.5Y 2.5/1</u>				

Hydric Soil Indicators:

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol                              | <input type="checkbox"/> Concretions/Nodules (w/in 3"; > 2mm)             |
| <input type="checkbox"/> Histic Epipedon                       | <input type="checkbox"/> High organic content in surface (in Sandy Soils) |
| <input type="checkbox"/> Sulfidic Odor                         | <input type="checkbox"/> Organic streaking (in Sandy Soils)               |
| <input type="checkbox"/> Reducing Conditions (tests positive)  | <input type="checkbox"/> Organic pan (in Sandy Soils)                     |
| <input checked="" type="checkbox"/> Gleyed / Low chroma        | <input type="checkbox"/> Listed on Hydric Soils List                      |
| <input checked="" type="checkbox"/> Redox. features (w/in 10") | <input type="checkbox"/> Other: _____                                     |
- Criteria Met? YES  NO  \* abund./size/contrast/color/location (matrix or pores/peds)

HYDROLOGY

Recorded Data  
 Recorded Data Available: \_\_\_\_\_ Aerial Photos  Stream gauge  Other  
 No Recorded Data Available  
 Field Data  
 Depth of inundation: \_\_\_\_\_ Depth to Saturation: \_\_\_\_\_ Depth to free water: \_\_\_\_\_

Primary Hydrology Indicators:

- Inundated
  - Saturated in upper 12 inches
  - Water Marks
  - Drift Lines
  - Sediment Deposits
  - Drainage Patterns
- Criteria Met? YES  NO

Secondary Hydrology Indicators (2 or more required):

- Oxidized Root Channels (upper 12")
- Water-stained Leaves
- Local Soil Survey Data
- FAC-Neutral Test
- Other: \_\_\_\_\_

DETERMINATION

WETLAND? YES  NO  Comments: \_\_\_\_\_

**CITY OF CORNELIUS  
WETLAND DETERMINATION FORM**

Project: City of Cornelius	Site: TD-1	Plot: TD-1-2
Investigators: KV, JG (DSL)	Watershed: Tualatin River	Date: May 8, 2002
County: Washington	Township/Range: 1S 3W	Section: 04CB

**VEGETATION Criteria Met: YES**

**Dominant Species**

Tree Stratum	Shrub Stratum	Herbaceous Stratum	
		<i>Typha latifolia</i>	OBL 25%
		<i>Phalaris arundinacea</i>	FACW 25%
		<i>Juncus effusus</i>	FACW 15%
		<i>Festuca arundinacea</i>	FAC- 15%
		<i>Holcus lanatos</i>	FAC 15%

Percent of dominant species FAC, FACW, or OBL: 2/3 80%

**SOILS Criteria Met: YES**

<b>Mapped Series:</b>	Verboort Silty Clay Loam	<b>Hydric Soil List:</b>	Yes
<b>Classification:</b>	Fine, mixed, mesic, typic Argialbolls	<b>Drainage Class:</b>	Poorly drained

Depth (In.)	Matrix Color	Redox Concentrations	Redox Depletions	Texture*/Structure
0-3	10YR 3/2			
3-12	10YR 4/2	7.5YR 4/4	c/m/p	

**Hydric Soil Indicators:**

Redox feature w/10"

**Field Data:**

Depth of Inundation:                      Depth of Saturation: moist e12"                      Depth of Free Water:

**HYDROLOGY Criteria Met: YES**

**Primary Indicators**

Inundated (Yes/No):  
Drainage Patterns:  
Water Marks:  
Drift Lines  
Sediment Deposits:

**Secondary Indicators**

Oxidized Root Channels: Yes  
FAC-Neutral Test: Yes

**COMMENTS:** Wetland to top of bank. Approximately 9' on either side of drainage. Six (6) inches of flowing water in bottom of drainage.

DIVISION OF STATE LANDS - WETLAND DETERMINATION DATA FORM

County: Washington Date: 5/8/02 File # TID-1  
 Project/Contact: \_\_\_\_\_ Det. by: KV, JG  
 Plant Community: \_\_\_\_\_ Plot # \_\_\_\_\_  
 Plot location: mixed field - taken on slope of drainage  
 Do normal environ. conditions exist? Y  N  Explain: \_\_\_\_\_  
 Has Veg. \_\_\_\_\_ Soil \_\_\_\_\_ Hydrology \_\_\_\_\_ been significantly disturbed?  
 Explain: \_\_\_\_\_

VEGETATION

Dominant Species	Status	% Cover	Dominant Species	Status	% Cover
Tree Stratum			Herb Stratum		
Total Cover: _____			Total Cover: <u>100%</u>		
1. _____			① <u>Typha latifolia</u>	<u>OBL</u>	<u>25</u>
2. _____			② <u>Phalaris arundinacea</u>	<u>FACW</u>	<u>25</u>
3. _____			③ <u>Juncus effusus</u>	<u>FACW</u>	<u>15</u>
4. _____			④ <u>Tritium pratense</u>	<u>FACU</u>	<u>5</u>
Sapling/Shrub Stratum			⑤ <u>Elymus arundinacea</u>		
Total Cover: _____			⑥ <u>Tritium repens</u>		
1. _____			⑦ <u>Daucus carota</u>		
2. _____			⑧ <u>Rumex acetosella</u>		
3. _____			⑨ <u>Rumex crispus</u>		
4. _____			⑩ <u>Scirpus microcarpus</u>		
5. _____			⑪ <u>Holcus lanatus</u>		
			⑫ <u>Hypochaeris radicata</u>		

Percent of Dominant Species that are OBL, FACW, FAC (not FAC-): 4/5 80%  
 Other Notable Species: Typha in drainage - remainder of species on slope  
 Criteria Met? YES  NO

SOILS

Map Unit Name: Verboort Silty Clay Loam Drainage Class: poorly drained  
 Taxonomy: Bw, mixed, mucic typic, Argialbolls On Hydric Soils List? Y  N

Depth	Horizon	Matrix Color	Redox Concentrations*	Redox Depletions*	Texture	Structure
<u>0-3</u>		<u>10YR 3/2</u>				
<u>3-12</u>		<u>10YR 4/2</u>	<u>7.5 YR 4/4</u>	<u>c/m/p</u>		

Hydric Soil Indicators:

- Histosol
  - Histic Epipedon
  - Sulfidic Odor
  - Reducing Conditions (tests positive)
  - Gleyed
  - Redox. features (w/in 10")
  - Concretions/Nodules (w/in 3"; > 2mm)
  - High organic content in surface (in Sandy Soils)
  - Organic streaking (in Sandy Soils)
  - Organic pan (in Sandy Soils)
  - Listed on Hydric Soils List
  - Other: \_\_\_\_\_
- Criteria Met? YES  NO  \* abund./size/contrast/color/location (matrix or pores/peds)

HYDROLOGY

Recorded Data: \_\_\_\_\_ Recorded Data Available: \_\_\_\_\_ Aerial Photos \_\_\_\_\_ Stream gauge \_\_\_\_\_ Other \_\_\_\_\_  
 \_\_\_\_\_ No Recorded Data Available  
 Field Data: \_\_\_\_\_ Depth of inundation: \_\_\_\_\_ Depth to Saturation: moist @ 12" Depth to free water: \_\_\_\_\_

Primary Hydrology Indicators:

- Inundated
  - Saturated in upper 12 inches
  - Water Marks
  - Drift Lines
  - Sediment Deposits
  - Drainage Patterns
  - Oxidized Root Channels (upper 12")
  - Water-stained Leaves
  - Local Soil Survey Data
  - FAC-Neutral Test
  - Other: \_\_\_\_\_
- Criteria Met? YES  NO

DETERMINATION

WETLAND? YES  NO  Comments: wetlands to top of Bank. approx. 9' on either side of drainage. Flowing water (perennial) 6" in bottom of drainage

## CITY OF CORNELIUS

### OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY

Date: May 8, 2002

Wetland Identification: TD-1

Investigators: KV, JG (DSL)

Wildlife Habitat	Fish Habitat - Streams	Fish Habitat - Lakes/Ponds	Water Quality	Hydrologic Control
Q1 - A	Q1 - C		Q1 - A	Q1 - A
Q2 - B	Q2 - B		Q2 - A	Q2 - A
Q3 - C	Q3 - A		Q3 - A	Q3 - B
Q4 - C	Q4 - A		Q4 - B	Q4 - B
Q5 - A	Q5 - C		Q5 - A	Q5 - C
Q6 - A	Q6 - C		Q6 - C	Q6 - A
Q7 - A				Q7 - A
Q8 - C				
Q9 - C				

Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality
Q1 - A	Q1 - A	Q1 - B	Q1 - A	Q1 - B
Q2 - B	Q2 - A	Q2 - A	Q2 - C	Q2 - A
Q3 - C	Q3 - C	Q3 - B	Q3 - A	Q3 - B
Q4 - A	Q4 - B	Q4 - C	Q4 - A	Q4 - B
Q5 - A	Q5 - C	Q5 - A	Q5 - B	Q5 - A
Q6 - B	Q6 - B	Q6 - A	Q6 - B	Q6 - B

<b>Wildlife Habitat</b>	The wetland provides habitat for some wildlife species.
<b>Fish Habitat - Streams</b>	The wetland's fish habitat function is impacted or degraded.
<b>Fish Habitat - Lakes/Ponds</b>	N/A
<b>Water Quality</b>	The wetland's water quality function is impacted or degraded.
<b>Hydrologic Control</b>	The wetland's hydrologic control function is intact.
<b>Sensitivity to Impact</b>	The wetland is potentially sensitive to future impacts.
<b>Enhancement Potential</b>	The wetland has moderate potential for enhancement.
<b>Education</b>	The wetland has potential for educational use.
<b>Recreation</b>	The wetland does not provide recreation opportunities.
<b>Aesthetic Quality</b>	The wetland is considered pleasing.

# City of Cornelius Wetland Inventory Summary Sheet

## Wetland Site: TD-1, Tualatin Drainage Unit

<u>Function</u>	<u>Evaluation Descriptor</u>	<u>Rationale</u>
<b>Wildlife Habitat</b>	Wetland provides some wildlife habitat.	Two Cowardin classes present; emergent vegetation and ponding is the dominant cover; wetland contains less than 0.5 acres of unvegetated open water and is connected to a perennial stream; less than 10% of the wetlands edge is bordered by 25' of vegetative buffer; dominate adjacent land use is residential
<b>Fish Habitat</b>	Habitat is impacted or degraded	Stream flows north to south; both the in-flow and out-flow water source is restricted; very little stream-side shade, less than 50%; dominant use at wetlands edge is developed uses; no species identified in stream.
<b>Water Quality</b>	Water quality is impacted or degraded.	Primary source of water is surface flow; over 60% of the wetland has vegetation cover; wetland is between 0.5 and 5 acres; evidence of ponding during a portion of growing season; nnot listed as water quality limited.
<b>Hydrologic Control</b>	Hydrology is intact.	All or part of the wetland is located in the 100 yr floodplain; evidence of ponding during the growing season; wetland is between 0.5 and 5 acres; wetland has restricted flow; emergent/wet meadow vegetation is dominant cover; dominant downstream uses are urban; dominant upstream use is urban.
<b>Sensitivity to Future Impacts</b>	Wetland is potentially sensitive to future impacts.	The stream flow has been modified by human activities; water is not being taken out upstream; residential development is the dominant use abutting the wetland; emergent vegetation and ponding is the dominant

		vegetation cover.
<b>Enhancement Potential</b>	Some potential for enhancement.	One or more of the functions is impacted or degraded; surface flow stream is the primary source of water; flow into the wetland is from an underground culvert, flow exists through a street culvert; wetland is between 0.5 and 5 acres; less than 10% of the wetland's edge is bordered by a vegetative buffer 25 feet or more in width.
<b>Education</b>	Has potential for educational use.	The wetland does have an observation area from an abutting public park and streets; public access does not exist; the wetland does provide some wildlife habitat; visible public hazards can easily be removed.
<b>Recreation</b>	Provides recreation opportunities.	Public park and streets abut the wetland; ADA trail parallels wetland in public park; no boat launching areas exist; wetland provides some wildlife habitat; fishing is allowed, fish presence has not been noted.
<b>Aesthetic Quality</b>	Pleasing aesthetics.	Two Cowardin classes are visible; over 50% of the wetland is visible from public park or public streets; Visual detractors exist in the form of residential development; the visual character of the surrounding area has been landscaped or manipulated by people; observing the site from abutting public park natural odors, with some residential; some traffic and residential noise would conflict with natural sounds.

### Narrative Description of Overall Wetland Functions and Conditions

A stream that is a tributary of the Tualatin River is a source, along with surface water the serves this wetland. The stream bank does have some immature woody vegetation species, but emergent/wet meadow vegetation is dominant. Residential development has influenced this wetland area. Water quality and hydrology are intact and there is potential for some wildlife habitat. The location of this site in a residential neighborhood, abutting Harleman Park and Echo Shaw Grade School provides potential for educational and recreational opportunities.

**CITY OF CORNELIUS  
LOCAL SIGNIFICANT WETLAND (LSW) CRITERIA CHECKLIST**

**Wetland Identification: TD-1**

**A. “OUT” Test**

Y	N	Wetlands that score “Yes” in any of the following categories do not proceed to Section B.
	X	Wetlands artificially created entirely from upland that is: <ul style="list-style-type: none"> <li>a. created for the purpose of controlling, storing, or maintaining stormwater;</li> <li>b. active surface mining ponds;</li> <li>c. ditches without free and open connection to waters of the state and without fish;</li> <li>d. &lt; 1 acre and unintentionally created from irrigation leak or construction activity;</li> <li>e. of any size and created for the purpose of wastewater treatment, shock watering, settling of sediment, cooling industrial water, or as a golf course hazard.</li> </ul>
	X	Documented as being contaminated by hazardous substances, materials or wastes (“Hazmat sites”).

**B. “IN” Test**

Y	N	Wetlands that meet ONE OR MORE of the following criteria are LSWs.
X		Wetlands that score the highest rank (stated in italics below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: <ul style="list-style-type: none"> <li>___ <i>diverse</i> wildlife habitat</li> <li>___ <i>intact</i> fish habitat</li> <li>___ <i>intact</i> water quality</li> <li><u> X </u> <i>intact</i> hydrologic control</li> </ul>
	X	Wetlands that are rated in the second highest functional category for water quality (called <i>impacted or degraded</i> in OFWAM), <u>AND</u> that occur within 1/4 mile of a water quality-limited stream listed by DEQ.
	X	Contain one or more rare/uncommon wetland plant communities in Oregon. (most concise list is found as Appendix G in OFWAM)
	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 rates in the second highest functional category for fish habitat (called <i>impacted or degraded</i> in OFWAM), and has a surface water connection to stream segment that is mapped by ODFW as habitat for “indigenous anadromous salmoids”.
	X	OPTIONAL CRITERION (at discretion of local government): Wetland represents a <b>LOCALLY</b> unique plant community.
	X	OPTIONAL CRITERION (at discretion of local government): Wetland rates highest rank for education potential and there is documented use for educational purposes by a school or organization

\* Wetland does meet criteria for consideration as significant.

T 1S R3W SECTION 04

City of Cornelius  
Local  
Wetland Inventory

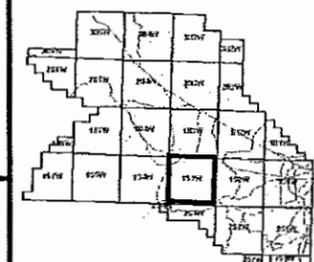
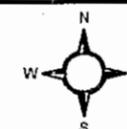
Wetland Site: TD-2

**Legend**

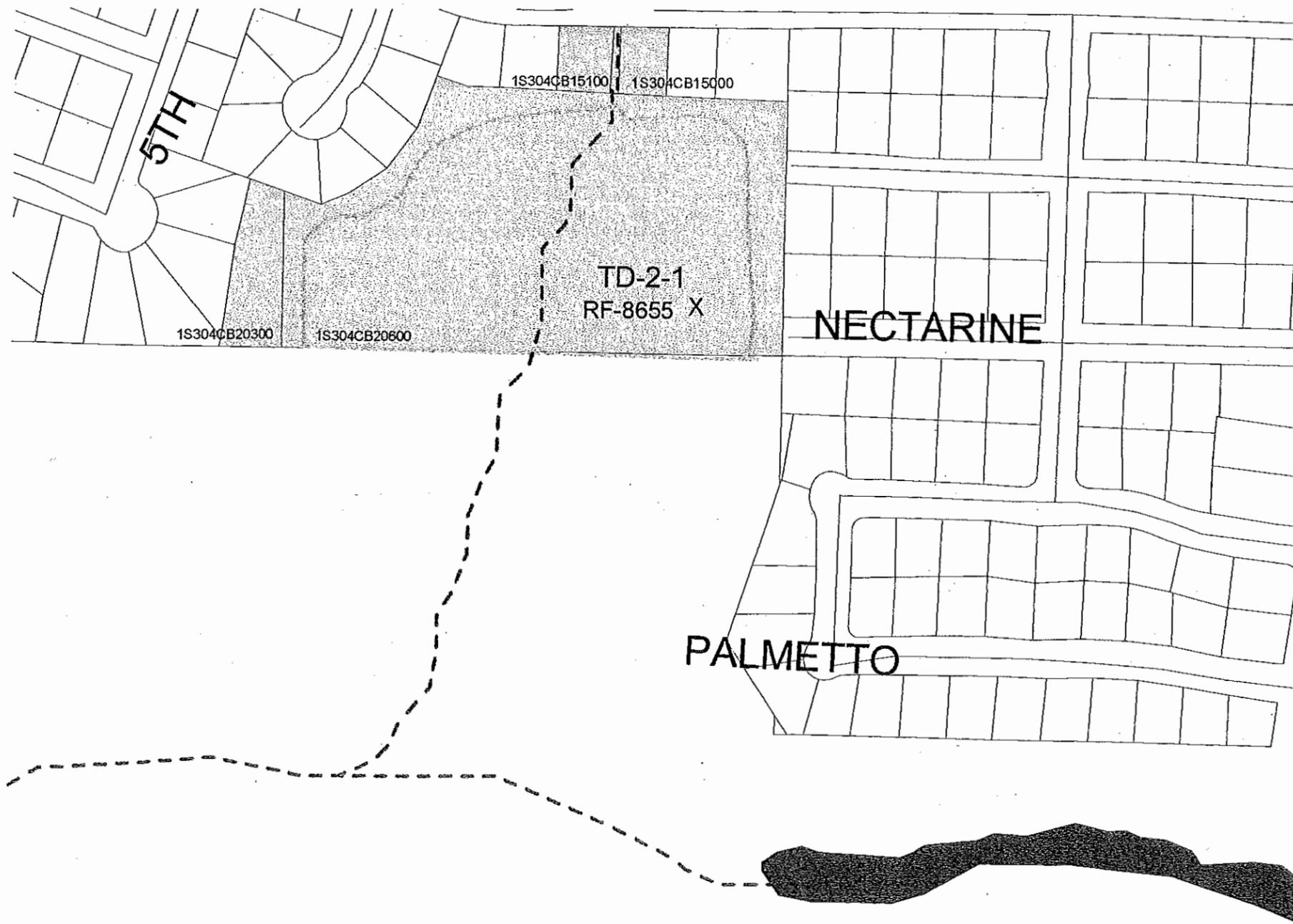
- X Sample Plot
- ≡ Railroad
- ∧ Streets
- ≡ Drainage Ditch
- ≡ Stream
- Wetland
- ▨ Adjacent Parcels
- Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

1:2400  
50 0 50 100 Feet



Washington County Oregon  
Information Current as of:  
**November 2002**



**CITY OF CORNELIUS LWI COVER SHEET**

<b>Wetland Identification:</b> TD-2	<b>Date of Field Verification:</b> May 8, 2002
<b>Investigators:</b> KV, JG (DSL)	<b>Size (acres):</b> @ 4.50
<b>Data Sheet:</b> TD-2-1	<b>Cowardin Classification:</b> PEM
	<b>HGM Classification:</b> Depressional Wetland

**LOCATION**

Map # 1S3-04CB      Tax Lot # 206 (Tract B)

**Other:**            South of S. Linden Street; west of S. 9<sup>th</sup> Avenue

**Basin:**            Tualatin River

**QUALITY**

OAR 141-086-0185 states that a wetland function and condition assessment using the *Oregon Freshwater Wetland Assessment Methodology (OFWAM)* shall be conducted to determine the quality and significance of the wetland. *OFWAM* results for TD-2 indicate the functions for water quality and hydrology are intact and this satisfies the Locally Significant Wetland Criteria identified in OAR 141-86-350.

**Soils:**            **Mapped Series:** Verboort Silty Clay Loam

**Hydrology:**      **Hydrologic Source:** Surface Flow

**Dominant Wetland Vegetation**

<b>TREES</b>	<b>SHRUBS</b>	<b>VINES</b>	<b>HERBS</b>
			<i>Agrostis stolonifera</i>
			<i>Phalaris arundinacea</i>
			<i>Trifolium repens</i>
			<i>Trifolium pratense</i>
			<i>Alopecurus pratensis</i>
			<i>Juncus tenuis</i>

**QUANTITY**

This wetland is fed by a stream, which flows into a seasonal pond. This wetland area is less than five (5) acres in size and is only one of two (2) wetland areas inventoried that have not been filled along this drainage.

**COMMENTS:**

TD-2 is a DSL impact and mitigation site, RF-8655. Mitigation is of the emergent wetland.

**Wetland Classifications Codes:**

PEM – Palustrine Emergent    PFO – Palustrine Forested    PSS – Palustrine Scrub-Shrub  
 PUB – Palustrine Unconsolidated Bottom

**CITY OF CORNELIUS  
WETLAND DETERMINATION FORM**

Project: City of Cornelius	Site: TD-2	Plot: TD-2-1
Investigators: KV, JG (DSL)	Watershed: Tualatin River	Date: May 8, 2002
County: Washington	Township/Range: 1S 3W	Section: 04CB

**VEGETATION Criteria Met: YES**

**Dominant Species**

Tree Stratum	Shrub Stratum	Herbaceous Stratum
		<i>Agrostis stolonifera</i> FAC+ 50%
		<i>Trifolium repens</i> FACW 15%
		<i>Trifolium pratense</i> FACU 15%

Percent of dominant species FAC, FACW, or OBL: 2/3 66%

\* Phalaris more abundant in other areas of the wetland.

**SOILS Criteria Met: YES**

Mapped Series: Verboort Silty Clay Loam      Hydric Soil List: Yes  
 Classification: Fine, mixed, mesic, typic Argialbolls      Drainage Class: Poorly drained

Depth (In.)	Matrix Color	Redox Concentrations	Redox Depletions	Textnre*/Structure
0-3	10YR 3/2	7.5YR 4/6	c/m/p	
3-12	2.5Y 3/1	7.5YR 4/6	m/m/p	

**Hydric Soil Indicators:**

Redox feature w/10"

**Field Data:**

Depth of Inundation:      Depth of Saturation:      Depth of Free Water:

**HYDROLOGY Criteria Met: YES**

**Primary Indicators**

Inundated (Yes/No):  
 Drainage Patterns:  
 Water Marks:  
 Drift Lines  
 Sediment Deposits:

**Secondary Indicators**

Oxidized Root Channels: Yes  
 FAC-Neutral Test: Yes

COMMENTS: East side of ponded area.

DIVISION OF STATE LANDS - WETLAND DETERMINATION DATA FORM

County: Washington Date: 5/8/02 File # TD-2  
 Project/Contact: \_\_\_\_\_ Det. by: KV, JG  
 Plant Community: \_\_\_\_\_ Plot # \_\_\_\_\_  
 Plot location: EAST SIDE N. POND IN AREA  
 Do normal environ. conditions exist?  YES  NO Explain: \_\_\_\_\_  
 Has Veg. \_\_\_\_\_ Soil \_\_\_\_\_ Hydrology \_\_\_\_\_ been significantly disturbed?  
 Explain: \_\_\_\_\_

VEGETATION

Dominant Species	Status	% Cover	Dominant Species	Status	% Cover
Tree Stratum			Herb Stratum		
Total Cover: _____			Total Cover: <u>100%</u>		
1. _____			1. _____		
2. _____			2. <u>Agrostis stolonifera</u>	<u>FAC</u>	<u>50</u>
3. _____			3. <u>Phalaris arundinacea</u>	<u>FACW</u>	<u>10</u>
4. _____			4. <u>Tritolium repens</u>	<u>FAC</u>	<u>15</u>
Sapling/Shrub Stratum			5. <u>Tritolium pratense</u>	<u>FACW</u>	<u>15</u>
Total Cover: _____			6. <u>Alpeyurus pratensis</u>	<u>FACW</u>	<u>10</u>
1. _____			7. <u>Sium tuberosum</u>	<u>FACW</u>	<u>10</u>
2. _____			8. _____		
3. _____			9. _____		
4. _____			10. _____		
5. _____					

Percent of Dominant Species that are OBL, FACW, FAC (not FAC-): 2/3 66%  
 Other Notable Species: Phalaris more abundant in other areas of wetland  
 Criteria Met? YES  NO

SOILS

Map Unit Name: Verbaort Silty Clay Loam Drainage Class: POORLY DRAINED  
 Taxonomy: ENE, mixed, muc typic Argialbolls On Hydric Soils List? Y  N

Depth	Horizon	Matrix Color	Redox Concentrations*	Redox Depletions*	Texture	Structure
<u>0-3</u>	<u>10YR 3/2</u>	<u>7.5YR 4/6</u>	<u>Cl/m/p</u>			
<u>3-12</u>	<u>2.5Y 3/1</u>	<u>7.5YR 4/6</u>	<u>m/m/p</u>			

Hydric Soil Indicators:

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol                              | <input type="checkbox"/> Concretions/Nodules (w/in 3"; > 2mm)             |
| <input type="checkbox"/> Histic Epipedon                       | <input type="checkbox"/> High organic content in surface (in Sandy Soils) |
| <input type="checkbox"/> Sulfidic Odor                         | <input type="checkbox"/> Organic streaking (in Sandy Soils)               |
| <input type="checkbox"/> Reducing Conditions (tests positive)  | <input type="checkbox"/> Organic pan (in Sandy Soils)                     |
| <input type="checkbox"/> Gleyed                                | <input type="checkbox"/> Listed on Hydric Soils List                      |
| <input checked="" type="checkbox"/> Redox. features (w/in 10") | Other: _____  |
- Criteria Met? YES  NO  \* abund./size/contrast/color/location (matrix or pores/peds)

HYDROLOGY

Recorded Data Available: \_\_\_\_\_ Aerial Photos \_\_\_\_\_ Stream gauge \_\_\_\_\_ Other \_\_\_\_\_  
 No Recorded Data Available \_\_\_\_\_

Field Data

Depth of inundation: \_\_\_\_\_ Depth to Saturation: \_\_\_\_\_ Depth to free water: \_\_\_\_\_

Primary Hydrology Indicators:

- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns

Secondary Hydrology Indicators (2 or more required):

- Oxidized Root Channels (upper 12")
- Water-stained Leaves
- Local Soil Survey Data
- FAC-Neutral Test
- Other: \_\_\_\_\_

Criteria Met? YES  NO

DETERMINATION

WETLAND? YES  NO  Comments: \_\_\_\_\_

**CITY OF CORNELIUS**

**OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY**

Date: May 8, 2002

Wetland Identification: TD-2

Investigators: KV, JG (DSL)

Wildlife Habitat	Fish Habitat - Streams	Fish Habitat - Lakes/Ponds	Water Quality	Hydrologic Control
Q1 - A	Q1 - C	Q1 - B	Q1 - A	Q1 - A
Q2 - B	Q2 - C	Q2 - C	Q2 - A	Q2 - A
Q3 - C	Q3 - C	Q3 - C	Q3 - A	Q3 - A
Q4 - C	Q4 - A	Q4 - A	Q4 - A	Q4 - B
Q5 - A	Q5 - C	Q5 - C	Q5 - A	Q5 - B
Q6 - A	Q6 - B	Q6 - B	Q6 - C	Q6 - B
Q7 - A				Q7 - A
Q8 - C				
Q9 - A				

Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality
Q1 - A	Q1 - A	Q1 - B	Q1 - C	Q1 - B
Q2 - B	Q2 - A	Q2 - A	Q2 - C	Q2 - A
Q3 - C	Q3 - C	Q3 - A	Q3 - C	Q3 - A
Q4 - A	Q4 - A	Q4 - B	Q4 - A	Q4 - B
Q5 - A	Q5 - A	Q5 - C	Q5 - A	Q5 - A
Q6 - C	Q6 - B	Q6 - B	Q6 - B	Q6 - A

<b>Wildlife Habitat</b>	The wetland provides some wildlife habitat.
<b>Fish Habitat - Streams</b>	The wetland's fish habitat function is impacted or degraded.
<b>Fish Habitat - Lakes/Ponds</b>	The wetland's fish habitat function is impacted or degraded.
<b>Water Quality</b>	The wetland's water quality function is impacted or degraded.
<b>Hydrologic Control</b>	The wetland's hydrologic control function is intact.
<b>Sensitivity to Impact</b>	The wetland is potentially sensitive to future impacts.
<b>Enhancement Potential</b>	The wetland has high potential for enhancement.
<b>Education</b>	The wetland has potential for educational use.
<b>Recreation</b>	The wetland does provide recreation opportunities.
<b>Aesthetic Quality</b>	The wetland is considered moderately pleasing.

# City of Cornelius Wetland Inventory Summary Sheet

## Wetland Site: TD-2, Tualatin Drainage Unit

<u>Function</u>	<u>Evaluation Descriptor</u>	<u>Rationale</u>
<b>Wildlife Habitat</b>	Wetland provides some wildlife habitat.	Two Cowardin classes present; emergent vegetation and ponding is the dominant cover; wetland contains less than 0.5 acres of unvegetated open water and is connected to a perennial stream; more than 40% of the wetlands edge is bordered by 25' of vegetative buffer; dominate adjacent land use is residential
<b>Fish Habitat</b>	Habitat is impacted or degraded	Stream flows north to south; both the in-flow and out-flow water source is restricted; very little stream-side shade; dominant use at wetlands edge is developed uses; non-game species identified in stream.
<b>Water Quality</b>	Water Quality is impacted or degraded.	Primary source of water is surface flow; over 60% of the wetland has vegetation cover; wetland is more than 5 acres; evidence of ponding during a portion of growing season.
<b>Hydrologic Control</b>	Hydrology is intact.	All or part of the wetland is located in the 100 yr floodplain; evidence of ponding during the growing season; wetland area >5 acres; wetland has restricted flow; emergent/wet meadow vegetation is dominant cover; dominant downstream uses are agriculture; dominant upstream use is urban.
<b>Sensitivity to Future Impacts</b>	Wetland is potentially sensitive to future impacts.	The stream flow has been modified by human activities; water is not being taken out upstream; residential development is the dominant use abutting the wetland; emergent vegetation and ponding is the dominant vegetation cover.
<b>Enhancement</b>	High potential for enhancement.	One or more of the functions is

<b>Potential</b>		impacted or degraded; surface flow stream is the primary source of water; flow into the wetland is through a street culvert; wetland area is greater than 5 acres; more than 40% of the wetland's edge is bordered by a vegetative buffer 25 feet or more in width.
<b>Education</b>	Has potential for educational use.	The wetland does have an observation area from local public streets; public access does not exist; the wetland does provide diverse wildlife habitat; no visible public hazards.
<b>Recreation</b>	Potential to provide recreation exists.	Private property and public streets abut the wetland; no trails or boat launching areas exist; wetland provides diverse wildlife habitat; fishing is allowed, fish presence has been noted.
<b>Aesthetic Quality</b>	Moderately pleasing	Two Cowardin classes are visible; over 50% of the wetland is visible from private property or public streets; Visual detractors exist in the form of residential development; the visual character of the surrounding area has been landscaped or manipulated by people; observing the site from abutting public streets natural and agricultural odors (from adjacent farmland) would dominate; some traffic and residential noise would conflict with natural sounds.

**Narrative Description of Overall Wetland Functions and Conditions**

A stream that is a tributary of the Tualatin River is the source of surface water the serves this wetland. Agricultural uses downstream and residential development upstream have influenced this wetland area. Water quality and hydrology are intact and there is potential for fish and wildlife habitat. The location of this site in a residential neighborhood and near Echo Shaw Grade School provides potential for educational and recreational opportunities.

**CITY OF CORNELIUS  
LOCAL SIGNIFICANT WETLAND (LSW) CRITERIA CHECKLIST**

**Wetland Identification: TD-2**

**A. “OUT” Test**

Y	N	Wetlands that score “Yes” in any of the following categories do not proceed to Section B.
	X	Wetlands artificially created entirely from upland that is: <ul style="list-style-type: none"> <li>a. created for the purpose of controlling, storing, or maintaining stormwater;</li> <li>b. active surface mining ponds;</li> <li>c. ditches without free and open connection to waters of the state and without fish;</li> <li>d. &lt; 1 acre and unintentionally created from irrigation leak or construction activity;</li> <li>e. of any size and created for the purpose of wastewater treatment, shock watering, settling of sediment, cooling industrial water, or as a golf course hazard.</li> </ul>
	X	Documented as being contaminated by hazardous substances, materials or wastes (“Hazmat sites”).

**B. “IN” Test**

Y	N	Wetlands that meet ONE OR MORE of the following criteria are LSWs.
X		Wetlands that score the highest rank (stated in italics below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: <ul style="list-style-type: none"> <li>___ <i>diverse</i> wildlife habitat</li> <li>___ <i>intact</i> fish habitat</li> <li>___ <i>intact</i> water quality</li> <li><u>X</u> <i>intact</i> hydrologic control</li> </ul>
	X	Wetlands that are rated in the second highest functional category for water quality (called <i>impacted or degraded</i> in OFWAM), <u>AND</u> that occur within 1/4 mile of a water quality-limited stream listed by DEQ.
	X	Contain one or more rare/uncommon wetland plant communities in Oregon. (most concise list is found as Appendix G in OFWAM)
	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 rates in the second highest functional category for fish habitat (called <i>impacted or degraded</i> in OFWAM), and has a surface water connection to stream segment that is mapped by ODFW as habitat for “indigenous anadromous salmoids”.
	X	OPTIONAL CRITERION (at discretion of local government): Wetland represents a <b>LOCALLY</b> unique plant community.
	X	OPTIONAL CRITERION (at discretion of local government): Wetland rates highest rank for education and there is documented use for educational purposes by a school or organization

T1S R3W SECTION 04

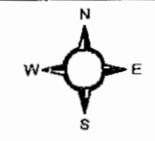
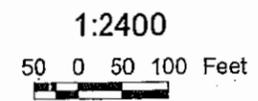
City of Cornelius  
Local  
Wetland Inventory

Wetland Site: TD-3

Legend

- X Sample Plot
- ⚡ Railroad
- ∧ Streets
- ⚡ Drainage Ditch
- ⚡ Stream
- Wetland
- ▨ Adjacent Parcels
- Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.



Washington County Oregon  
Information Current as of:  
November 2002



**CITY OF CORNELIUS LWI COVER SHEET**

<b>Wetland Identification:</b> TD-3	<b>Date of Field Verification:</b> May 8, 2002
<b>Investigators:</b> KV, JG (DSL)	<b>Size (acres):</b> @ 0.30
<b>Data Sheet:</b> TD-3-1	<b>Cowardin Classification:</b> PEM
	<b>HGM Classification:</b> Atypical Wetland

**LOCATION**

Map # 1S3-04BB      Tax Lot # 100, 200, 300

**Other:**            North of Union Pacific Railroad tracks; east of S. 1<sup>st</sup> Avenue

**Basin:**            Tualatin River

**QUALITY**

OAR 141-086-0185 states that a wetland function and condition assessment using the *Oregon Freshwater Wetland Assessment Methodology (OFWAM)* shall be conducted to determine the quality and significance of the wetland. *OFWAM* results for TD-3 indicate it does not satisfies the Locally Significant Wetland Criteria identified in OAR 141-86-350.

**Soils:**            **Mapped Series:** Verboort Silty Clay Loam

**Hydrology:**    **Hydrologic Source:** Surface Flow

**dominant Wetland Vegetation**

<b>TREES</b>	<b>SHRUBS</b>	<b>VINES</b>	<b>HERBS</b>
	<i>Salix sitchensis</i>		<i>Juncus effusus</i>
	<i>Salix lasiandra</i>		<i>Phalaris arundinacea</i>
	<i>Rubus discolor</i>		<i>Carex densa</i>

**QUANTITY**

The drainage originates in the City of Forest Grove and is immediately altered by road and railroad track construction as it enters the City of Cornelius. This isolated wetland area is less than five (5) acres in size and does not appear to connect to another water body or wetland.

**COMMENTS**

The source of this drainage ditch is in the City of Forest Grove. The drainage ditch flows southwest into Cornelius and follows along the north side of the Union Pacific railroad tracks.

**Wetland Classifications Codes:**

PEM – Palustrine Emergent    PFO – Palustrine Forested    PSS – Palustrine Scrub-Shrub  
 PUB – Palustrine Unconsolidated Bottom

**CITY OF CORNELIUS  
WETLAND DETERMINATION FORM**

Project: City of Cornelius	Site: TD-3	Plot: TD-3-1
Investigators: KV, JG (DSL)	Watershed: Tualatin River	Date: May 8, 2002
County: Washington	Township/Range: 1S 3W	Section: 04BB

**VEGETATION Criteria Met: YES**

**Dominant Species**

Tree Stratum	Shrub Stratum	Herbaceous Stratum
	<i>Salix sitchensis</i> FACW 30%	<i>Juncus effuses</i> FACW 40%
	<i>Salix lasiandra</i> FACW+ 30%	<i>Phalaris arundinace</i> FACW 60%
	<i>Rubus discolor</i> FACU 30%	<i>Carex densa</i> OBL Trace

Percent of dominant species FAC, FACW, or OBL: 4/4 100%

**SOILS Criteria Met: YES**

<b>Mapped Series:</b> Verboort Silty Clay Loam	<b>Hydric Soil List:</b> Yes
<b>Classification:</b> Fine, mixed, mesic, typic Argialbolls	<b>Drainage Class:</b> Poorly drained

Depth (In.)	Matrix Color	Redox Concentrations	Redox Depletions	Texture*/Structure
0-5	10YR 3/2			
5-12	10YR 3/1	7.5YR 4/6	c/f/p	

**Hydric Soil Indicators:**

Redox feature w/10"  
Gleyed/Low Chroma

**Field Data:**

Depth of Inundation: 6 inches      Depth of Saturation: surface      Depth of Free Water:

**HYDROLOGY Criteria Met: YES**

**Primary Indicators**

Inundated: Yes  
Drainage Patterns: Yes  
Saturated in Upper 12 Inches: Yes  
Water Marks:  
Drift Lines  
Sediment Deposits:

**Secondary Indicators**

Oxidized Root Channels:  
FAC-Neutral Test:

**COMMENTS:** Drainage ditch has been modified by a local street and the railroad tracks. Rubus was rooted on the bank.

DIVISION OF STATE LANDS -- WETLAND DETERMINATION DATA FORM

County: Washington Date: 5/8/02 File # TD-3  
 Project/Contact: \_\_\_\_\_ Dist. by: KU, JG  
 Plant Community: \_\_\_\_\_ Plot # \_\_\_\_\_  
 Plot location: Drainage Ditch North of RR Line  
 Do normal environ. conditions exist? Y  N  Explain: \_\_\_\_\_  
 Has Veg. soil Hydrology been significantly disturbed?  
 Explain: \_\_\_\_\_

VEGETATION

Dominant Species		Status	% Cover	Dominant Species		Status	% Cover
<u>Tree Stratum</u>				<u>Herb Stratum</u>			
Total Cover: _____				Total Cover: <u>40%</u>			
1.	_____			1.	_____		
2.	_____			2.	<u>Juncus effusus</u>	<u>FACW</u>	<u>40</u>
3.	_____			3.	<u>Phalaris arundinacea</u>	<u>FACW</u>	<u>60</u>
4.	_____			4.	<u>Carex diandra</u>	<u>OBL</u>	<u>11</u>
<u>Sapling/Shrub Stratum</u>				5. _____			
Total Cover: <u>10%</u>				6. _____			
1.	<u>Salix lasiolepis</u>	<u>FACW</u>	<u>30</u>	7. _____			
2.	<u>Salix lasiantha</u>	<u>FACW</u>	<u>30</u>	8. _____			
3.	<u>Rubus discolor</u>	<u>FACU</u>	<u>30</u>	9. _____			
4.	_____			10. _____			
5.	_____						

Percent of Dominant Species that are OBL, FACW, FAC (not FAC-): 4/4 100%  
 Other Notable Species: Rubus coccineus on banks  
 Criteria Met? YES  NO

SOILS

Map Unit Name: Verbaart Silty Clay Loam Drainage Class: poorly drained  
 Taxonomy: fine, mixed, moic typic Argialboll On Hydric Soils List? Y  N

Depth	Horizon	Matrix Color	Redox Concentrations*	Redox Depletions*	Texture	Structure
<u>0-5</u>		<u>10YR 3/2</u>				
<u>5-16</u>		<u>10YR 3/1</u>	<u>7.5YR 4/4</u>	<u>c/f/p</u>		

Hydric Soil Indicators:  
 Histosol  
 Histic Epipedon  
 Sulfidic Odor  
 Reducing Conditions (tests positive)  
 Gleyed / low chroma  
 Redox. features (w/in 10")  
 Concretions/Nodules (w/in 3"; > 2mm)  
 High organic content in surface (in Sandy Soils)  
 Organic streaking (in Sandy Soils)  
 Organic pan (in Sandy Soils)  
 Listed on Hydric Soils List  
 Other: \_\_\_\_\_  
 Criteria Met? YES  NO  \* abund./size/contrast/color/location (matrix or pores/peds)

HYDROLOGY

Recorded Data: \_\_\_\_\_  
 Recorded Data Available: \_\_\_\_\_ Aerial Photos \_\_\_\_\_ Stream gauge \_\_\_\_\_ Other \_\_\_\_\_  
 No Recorded Data Available  
 Field Data: \_\_\_\_\_  
 Depth of inundation: 6" Depth to Saturation: surface Depth to free water: \_\_\_\_\_  
 Primary Hydrology Indicators:  
 Inundated  
 Saturated in upper 12 inches  
 Water Marks  
 Drift Lines  
 Sediment Deposits  
 Drainage Patterns  
 Criteria Met? YES  NO   
 Secondary Hydrology Indicators (2 or more required):  
 Oxidized Root Channels (upper 12")  
 Water-stained Leaves  
 Local Soil Survey Data  
 FAC-Neutral Test  
 Other: \_\_\_\_\_

DETERMINATION

WETLAND? YES  NO  Comments: \_\_\_\_\_

**CITY OF CORNELIUS**

**OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY**

Date: May 8, 2002

Wetland Identification: TD-3

Investigators: KV, JG (DSL)

Wildlife Habitat	Fish Habitat - Streams	Fish Habitat - Lakes/Ponds	Water Quality	Hydrologic Control
Q1 - C	Q1 - C		Q1 - A	Q1 - B
Q2 - C	Q2 - C		Q2 - C	Q2 - C
Q3 - C	Q3 - C		Q3 - A	Q3 - B
Q4 - C	Q4 - A		Q4 - B	Q4 - A
Q5 - B	Q5 - C		Q5 - A	Q5 - C
Q6 - B	Q6 - C		Q6 - C	Q6 - A
Q7 - A				Q7 - A
Q8 - C				
Q9 - C				

Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality
Q1 - A	Q1 - A	Q1 - B	Q1 - A	Q1 - C
Q2 - B	Q2 - A	Q2 - A	Q2 - C	Q2 - A
Q3 - C	Q3 - B	Q3 - B	Q3 - A	Q3 - A
Q4 - A	Q4 - B	Q4 - C	Q4 - B	Q4 - B
Q5 - A	Q5 - C	Q5 - A	Q5 - B	Q5 - B
Q6 - B	Q6 - B	Q6 - A	Q6 - B	Q6 - B

<b>Wildlife Habitat</b>	The wetland provides some wildlife habitat.
<b>Fish Habitat - Streams</b>	The wetland's fish habitat function is impacted.
<b>Fish Habitat - Lakes/Ponds</b>	
<b>Water Quality</b>	The wetland's water quality function is impacted/degraded.
<b>Hydrologic Control</b>	The wetland's hydrologic control function is impacted/degraded.
<b>Sensitivity to Impact</b>	The wetland is potentially sensitive to future impacts.
<b>Enhancement Potential</b>	The wetland has moderate potential for enhancement.
<b>Education</b>	The wetland has potential for educational use.
<b>Recreation</b>	The wetland does provide recreation opportunities.
<b>Aesthetic Quality</b>	The wetland is considered moderately pleasing.

# City of Cornelius Wetland Inventory Summary Sheet

## Wetland Site: TD-3, UP Railroad Ditch

<u>Function</u>	<u>Evaluation Descriptor</u>	<u>Rationale</u>
<b>Wildlife Habitat</b>	Provides some habitat for wildlife.	One Cowardin class present; emergent vegetation is the dominant cover; wetland is connected to what may be a perennial stream; developed uses in the form of a railroad track abut on the wetland on the south.
<b>Fish Habitat</b>	Fish habitat impacted.	Stream flows north to south; very little stream-side shade; dominant use at wetlands edge is RR Track; no fish present. This is not a fish habitat/
<b>Water Quality</b>	Water quality is impacted or degraded.	Primary source of water is surface flow; no evidence of ponding during growing season; over 60% of the wetland has vegetation cover; wetland is between 0.5 and 5 acres
<b>Hydrologic Control</b>	Hydrology is impacted or degraded.	None of the wetland is located in the 100 yr floodplain; No evidence of flooding during the growing season; wetland area 0.5 - 5 acres; emergent/wet meadow vegetation is dominant cover; dominant downstream uses are urban; dominant upstream use is urban.
<b>Sensitivity to Future Impacts</b>	Potentially sensitive to future impacts.	The adjacent stream bank has been modified by human activities; water is not being taken out upstream; no upstream/adjacent reaches are listed as water quality limited; Commercial development, a state highway and a railroad line are within 500 feet of wetland; emergent vegetation is the dominant vegetation cover.
<b>Enhancement Potential</b>	Moderate potential for enhancement	One or more of the functions is impacted or degraded; surface flow ditch is the primary source of water; a local street w/culvert has restricted the

		flow into the wetland; wetland area is between 0.5 and 5 acres in size; less than 10% of the wetland's edge is bordered by a vegetative buffer 25 feet or more in width.
<b>Education</b>	Wetland has potential for educational use.	The wetland is not open for direct access, but observation is possible from a public sidewalk; no visible safety hazards exist; the wetland does not meet the criteria for provision of diverse fish & wildlife habitat;
<b>Recreation</b>	Wetland provides recreational opportunities	No access point, trails or boat launching areas exist; some wildlife habitat does exist; fishing is not an applicable activity for this area.
<b>Aesthetic Quality</b>	Wetland is not considered pleasing.	One Cowardin class is visible; over 50% of the wetland is visible from private property or public right-of-way; Visual detractors exist (highway, commercial development, RR tracks) and cannot be easily removed; the visual character of the surrounding area has been landscaped or manipulated by people; Unpleasant odors and audible noise from automobile traffic on the highway is present.

**Narrative Description of Overall Wetland Functions and Conditions**

This small wetland area has been modified by human activity through construction of a railroad track on the south. The water quality, wildlife habitat and hydrology functions are impacted/degraded and fish habitat is not present.

**CITY OF CORNELIUS  
LOCAL SIGNIFICANT WETLAND (LSW) CRITERIA CHECKLIST**

**Wetland Identification: TD-3**

**A. "OUT" Test**

Y	N	Wetlands that score "Yes" in any of the following categories do not proceed to Section B.
	X	Wetlands artificially created entirely from upland that is: <ul style="list-style-type: none"> <li>a. created for the purpose of controlling, storing, or maintaining stormwater;</li> <li>b. active surface mining ponds;</li> <li>c. ditches without free and open connection to waters of the state and without fish;</li> <li>d. &lt; 1 acre and unintentionally created from irrigation leak or construction activity;</li> <li>e. of any size and created for the purpose of wastewater treatment, shock watering, settling of sediment, cooling industrial water, or as a golf course hazard.</li> </ul>
	X	Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

**B. "IN" Test**

Y	N	Wetlands that meet ONE OR MORE of the following criteria are LSWs.
	X	Wetlands that score the highest rank (stated in italics below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: <ul style="list-style-type: none"> <li>___ <i>diverse</i> wildlife habitat</li> <li>___ <i>intact</i> fish habitat</li> <li>___ <i>intact</i> water quality</li> <li>___ <i>intact</i> hydrologic control</li> </ul>
	X	Wetlands that are rated in the second highest functional category for water quality (called <i>impacted or degraded</i> in OFWAM), <u>AND</u> that occur within 1/4 mile of a water quality-limited stream listed by DEQ.
	X	Contain one or more rare/uncommon wetland plant communities in Oregon. (most concise list is found as Appendix G in OFWAM)
	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 rates in the second highest functional category for fish habitat (called <i>impacted or degraded</i> in OFWAM), and has a surface water connection to stream segment that is mapped by ODFW as habitat for "indigenous anadromous salmoids".
	X	OPTIONAL CRITERION (at discretion of local government): Wetland represents a <b>LOCALLY</b> unique plant community.
	X	OPTIONAL CRITERION (at discretion of local government): Wetland rates highest rank for education potential and there is documented use for educational purposes by a school or organization

\* Wetland does not meet the criteria in Section B, "IN" Test for significance.

T1S R3W SECTION 04

City of Cornelius  
Local  
Wetland Inventory

Wetland Site: TR-1

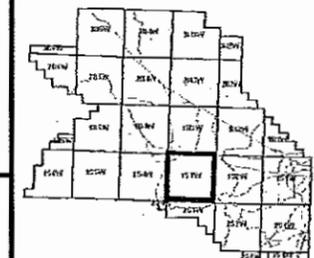
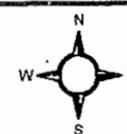
Legend

- X Sample Plot
- ▬ Railroad
- ▬ Streets
- ▬ Drainage Ditch
- ▬ Stream
- ▭ Wetland
- ▭ Adjacent Parcels
- ▭ Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

1:2400

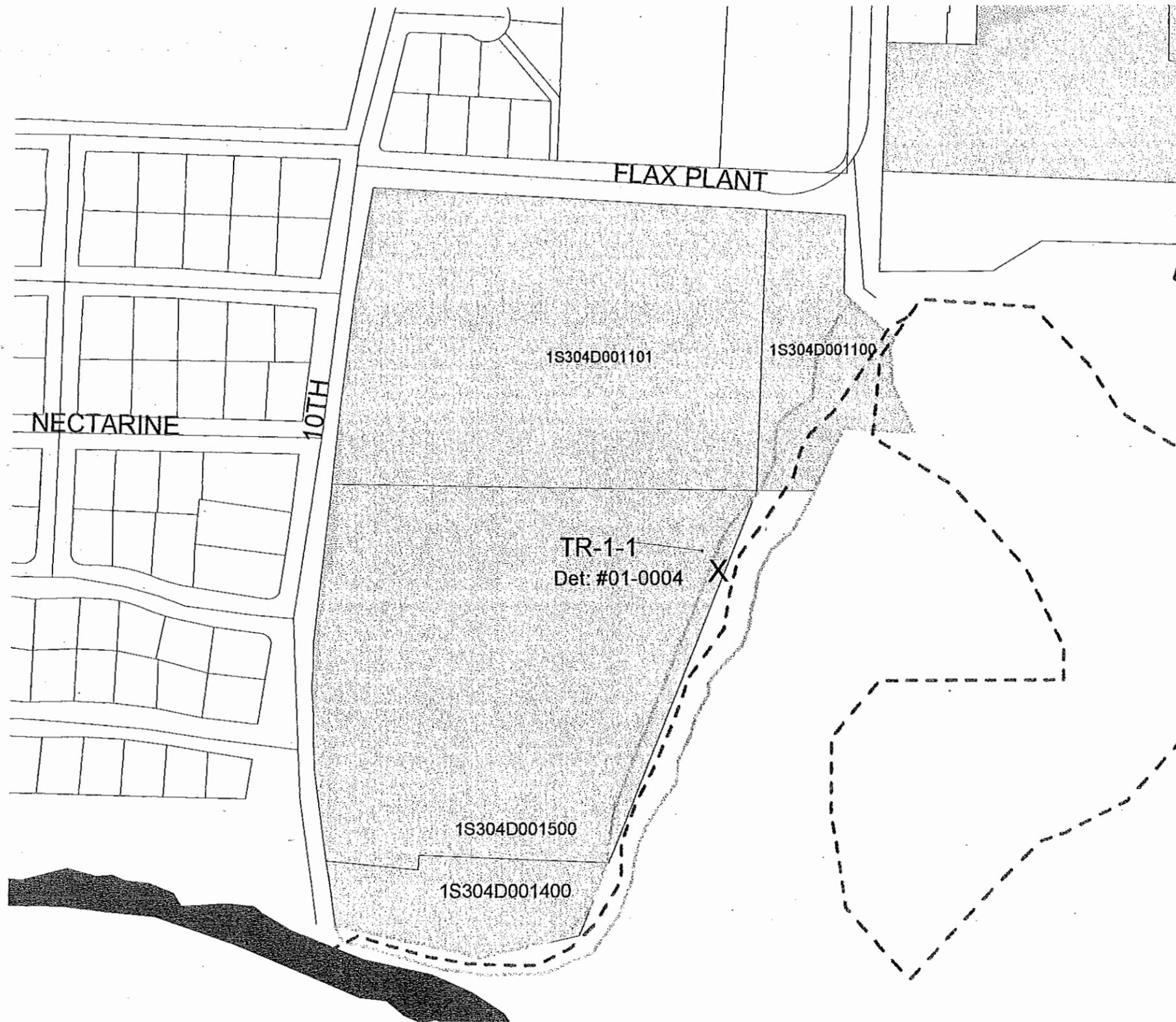
50 0 50 100 Feet



Washington County Oregon

Information Current as of:

November 2002



CITY OF CORNELIUS LWI COVER SHEET

<b>Wetland Identification:</b> TR-1	<b>Date of Field Verification:</b> May 8, 2002
<b>Investigators:</b> KV, JG (DSL)	<b>Size (acres):</b> @ 0.90
<b>Data Sheet:</b> TR-1-1	<b>Cowardin Classification:</b> PFO
	<b>HGM Classification:</b> Riverine

**LOCATION**

Map # 1S3-04D      Tax Lot # 1500 (Tract B)

**Other:**      East side of Stillwater Meadows Subdivision.

**Basin:**      Tualatin River

**QUALITY**

OAR 141-086-0185 states that a wetland function and condition assessment using the *Oregon Freshwater Wetland Assessment Methodology (OFWAM)* shall be conducted to determine the quality and significance of the wetland. *OFWAM* results for TR-1 indicate the functions for water quality, fish habitat and hydrology are intact and this satisfies the Locally Significant Wetland Criteria identified in OAR 141-86-350.

**Soils:**      **Mapped Series:** Verboort Silty Clay Loam & Wapato Silty Clay Loam

**Hydrology:**      **Hydrologic Source:** Surface Flow

**Dominant Wetland Vegetation**

<b>TREES</b>	<b>SHRUBS</b>	<b>VINES</b>	<b>HERBS</b>
<i>Fraxinus latifolia</i>			<i>Phalaris arundinacea</i>
			<i>Mentha avensis</i>
			<i>Rumex crispus</i>
			<i>Alopecurus pratensis</i>

**QUANTITY**

The perennial stream associated with this wetland is a tributary to the main stem of the Tualatin River. The wetland area within the City as determined by an approved delineation report is .87 acres in size. It is one of two (2) Palustrine Forested wetlands in the City.

**COMMENTS:**

Soil moist throughout profile compared and verified in the Division of State Lands (DSL) Delineation File WD-01-0004. Wetland ranges from 20-40' from channel on north side.

**Wetland Classifications Codes:**

PEM – Palustrine Emergent    PFO – Palustrine Forested    PSS – Palustrine Scrub-Shrub  
PUB – Palustrine Unconsolidated Bottom

**CITY OF CORNELIUS  
WETLAND DETERMINATION FORM**

Project: City of Cornelius	Site: TR-1	Plot: TR-1-1
Investigators: KV, JG (DSL)	Watershed: Tualatin River	Date: May 8, 2002
County: Washington	Township/Range: 1S 3W	Section: 04D

**VEGETATION** **Criteria Met: YES**

**Dominant Species**

Tree Stratum	Shrub Stratum	Herbaceous Stratum
<i>Fraxinus latifolia</i> FACW 100%		<i>Phalaris arundinace</i> FACW 70%
		<i>Aleopecurus pratensis</i> FACW 20%

Percent of dominant species FAC, FACW, or OBL: 100%

**SOILS** **Criteria Met: YES**

Mapped Series: Wapato Silty Clay Loam **Hydric Soil List: Yes**  
 Classification: Fine-silty, mixed, mesic, Fluvaquentic Haplaquolls **Drainage Class: Poorly drained**

Depth (In.)	Matrix Color	Redox Concentrations	Redox Depletions	Texture*/Structure
0-3	10YR 3/2	10 YR 3/6	c/m/p	
3-6	2.5 Y 4/2	10 YR 3/6	c/m/p	sandy lens
6-12	10 YR 3/2	10 YR 4/6	c/m/p	

**Hydric Soil Indicators:**

Redox feature w/10"

**Field Data:**

Depth of Inundation: Depth of Saturation: surface Depth of Free Water:

**HYDROLOGY** **Criteria Met: YES**

**Primary Indicators**

Inundated: No  
 Drainage Patterns: No  
 Saturated in Upper 12 Inches: No  
 Water Marks:  
 Drift Lines  
 Sediment Deposits:

**Secondary Indicators**

Oxidized Root Channels: Yes  
 FAC-Neutral Test: Yes

**COMMENTS:** Soil moist throughout profile compared and verified to Division Delineation File WD 01-0004.  
 Wetland ranges 20-40 feet from channel on north side.

DSL File: WD 01-0004

DIVISION OF STATE LANDS - WETLAND DETERMINATION DATA FORM

County: Washington Date: 5/8/02 File # TR-1  
 Project/Contact: \_\_\_\_\_ Det. by: KV, JG  
 Plant Community: \_\_\_\_\_ Plot # \_\_\_\_\_  
 Plot location: Side Drainage to Tualatin River  
 Do normal environ. conditions exist?  Y  N Explain: \_\_\_\_\_  
 Has Veg. \_\_\_\_\_ Soil \_\_\_\_\_ Hydrology \_\_\_\_\_ been significantly disturbed?  
 Explain: \_\_\_\_\_

VEGETATION

Dominant Species	Status	% Cover	Dominant Species	Status	% Cover
<u>Tree Stratum</u>			<u>Herb Stratum</u>		
Total Cover: <u>100%</u>			Total Cover: <u>100%</u>		
1. <u>FRAXINUS latifolia</u>	<u>FACW</u>	<u>100</u>	1. _____	_____	_____
2. _____	_____	_____	2. <u>Phalaris arundinacea</u>	<u>FACW</u>	<u>70</u>
3. _____	_____	_____	3. <u>Mentha arvensis</u>	<u>FACW</u>	<u>5</u>
4. _____	_____	_____	4. <u>Rumex crispus</u>	<u>FACW</u>	<u>5</u>
<u>Sapling/Shrub Stratum</u>			5. <u>Alapewocul pratensis</u>	<u>FACW</u>	<u>20</u>
Total Cover: _____			6. _____	_____	_____
1. _____	_____	_____	7. _____	_____	_____
2. _____	_____	_____	8. _____	_____	_____
3. _____	_____	_____	9. _____	_____	_____
4. _____	_____	_____	10. _____	_____	_____
5. _____	_____	_____			

Percent of Dominant Species that are OBL, FACW, FAC (not FAC-): 100%

Other Notable Species: \_\_\_\_\_  
 Criteria Met? YES  NO

SOILS

Map Unit Name: Wapato Silty Clay Loam Drainage Class: poorly drained  
 Taxonomy: Fine-silty, mixed, medic On Hydric Soils List? Y  N   
Fluvaquentic Haplaquolls

Depth	Horizon	Matrix Color	Redox Concentrations*	Redox Depletions*	Texture	Structure
<u>0-3</u>	<u>10YR 3/2</u>	<u>10YR 3/6</u>	<u>clm/p</u>			
<u>3-6</u>	<u>2.5Y 4/2</u>	<u>10YR 3/6</u>	<u>clm/p</u>	<u>SANDY LENS</u>		
<u>6-12</u>	<u>10YR 3/2</u>	<u>10YR 4/4</u>	<u>clm/p</u>			

Hydric Soil Indicators:

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol                              | <input type="checkbox"/> Concretions/Nodules (w/in 3"; > 2mm)             |
| <input type="checkbox"/> Histic Epipedon                       | <input type="checkbox"/> High organic content in surface (in Sandy Soils) |
| <input type="checkbox"/> Sulfidic Odor                         | <input type="checkbox"/> Organic streaking (in Sandy Soils)               |
| <input type="checkbox"/> Reducing Conditions (tests positive)  | <input type="checkbox"/> Organic pan (in Sandy Soils)                     |
| <input type="checkbox"/> Gleyed                                | <input type="checkbox"/> Listed on Hydric Soils List                      |
| <input checked="" type="checkbox"/> Redox. features (w/in 10") | <input type="checkbox"/> Other: _____                                     |
- Criteria Met? YES  NO  \* abund./size/contrast/color/location (matrix or pores/peds)

HYDROLOGY

Recorded Data

Recorded Data Available: \_\_\_\_\_ Aerial Photos \_\_\_\_\_ Stream gauge \_\_\_\_\_ Other \_\_\_\_\_  
 No Recorded Data Available

Field Data

Depth of inundation: \_\_\_\_\_ Depth to Saturation: \_\_\_\_\_ Depth to free water: \_\_\_\_\_

Primary Hydrology Indicators:

- Inundated
- Saturated in upper 12 inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns

Secondary Hydrology Indicators (2 or more required):

- Oxidized Root Channels (upper 12")
- Water-stained Leaves
- Local Soil Survey Data
- FAC-Neutral Test
- Other: \_\_\_\_\_

Criteria Met? YES  NO

DETERMINATION

WETLAND? YES  NO  Comments: soil moist throughout profile

Compared and verified to Division delineation file WD 01-0004.  
Wetlands range 20-40' from channel on north side.

## CITY OF CORNELIUS

### OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY

Date: May 8, 2002

Wetland Identification: TR-1

Investigators: KV, JG (DSL)

Wildlife Habitat	Fish Habitat - Streams	Fish Habitat - Lakes/Ponds	Water Quality	Hydrologic Control
Q1 - A	Q1 - A		Q1 - A	Q1 - A
Q2 - A	Q2 - A		Q2 - A	Q2 - A
Q3 - C	Q3 - B		Q3 - A	Q3 - A
Q4 - C	Q4 - A		Q4 - A	Q4 - C
Q5 - A	Q5 - C		Q5 - A	Q5 - A
Q6 - A	Q6 - A		Q6 - C	Q6 - A
Q7 - A				Q7 - B
Q8 - C				
Q9 - A				

Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality
Q1 - B	Q1 - A	Q1 - C	Q1 - C	Q1 - B
Q2 - A	Q2 - A	Q2 - A	Q2 - C	Q2 - C
Q3 - C	Q3 - A	Q3 - B	Q3 - C	Q3 - A
Q4 - A	Q4 - A	Q4 - B	Q4 - B	Q4 - B
Q5 - A	Q5 - A	Q5 - C	Q5 - B	Q5 - B
Q6 - A	Q6 - B	Q6 - B	Q6 - A	Q6 - A

<b>Wildlife Habitat</b>	The wetland provides habitat for some wildlife species.
<b>Fish Habitat - Streams</b>	The wetland's fish habitat function is intact.
<b>Fish Habitat - Lakes/Ponds</b>	N/A
<b>Water Quality</b>	The wetland's water quality function is impacted.
<b>Hydrologic Control</b>	The wetland's hydrologic control function is intact.
<b>Sensitivity to Impact</b>	The wetland is potentially sensitive to future impacts.
<b>Enhancement Potential</b>	The wetland has high potential for enhancement.
<b>Education</b>	The wetland is not appropriate for educational use.
<b>Recreation</b>	The wetland does have potential for recreation opportunities.
<b>Aesthetic Quality</b>	The wetland is considered moderately pleasing.

## City of Cornelius Wetland Inventory Summary Sheet

Wetland Site: TR-1, Tualatin River

<u>Function</u>	<u>Evaluation Descriptor</u>	<u>Rationale</u>
<b>Wildlife Habitat</b>	Provides some habitat for wildlife.	Two Cowardin classes present; woody vegetation is the dominant cover; wetland is connected to a perennial stream; developed uses are the dominant uses abutting the wetland within the City.
<b>Fish Habitat</b>	Fish Habitat is intact.	More than 75% of stream is shaded; the stream is a natural channel, a tributary of the Tualatin River; Salmon, trout and sensitive species are present in the Tualatin River system.
<b>Water Quality</b>	Water Quality is impacted.	Primary source of water is surface flow; over 60% of the wetland has vegetation cover; wetland is > 5 acres; evidence of ponding during a portion of growing season; no upstream reaches are listed as <i>water quality limited</i> .
<b>Hydrologic Control</b>	Hydrology is intact.	All or part of the wetland is located in the 100 yr floodplain; wetland area > 5 acres; wetland has unrestricted flow; woody vegetation is dominant cover; dominant downstream uses are urban; dominant upstream use is agriculture.
<b>Sensitivity to Future Impacts</b>	Potentially sensitive to future impacts	The adjacent stream bank has been modified by human activities; water is being taken out upstream; upstream reaches are not listed as water quality limited; residential and industrial use is adjacent to the wetlands in the City.
<b>Enhancement Potential</b>	High enhancement potential.	None of the functions are impacted or degraded; surface flow stream is the primary source of water; flow is not restricted; more than 40% of the wetland's edge is bordered by a vegetative buffer 25 feet or more in width.

<b>Education</b>	Educational uses are not appropriate	The wetland does not have a public access or an observation area; no visible safety hazards exist; the wetland does meet the criteria to provide some fish & wildlife habitat.
<b>Recreation</b>	Has potential for some recreation.	No public access point exists; no trails or boat launching areas exist; some wildlife habitat does exist; fishing is allowed.
<b>Aesthetic Quality</b>	Aesthetics are moderately pleasing.	Two Cowardin classes are visible; there is no viewing areas; no visual detractors exist; the visual character of the surrounding area has been landscaped or manipulated by people; the wetland is adjacent to residential and industrial uses so some odors and noise with conflict with natural sounds and smells.

**Narrative Description of Overall Wetland Functions and Conditions**

A Tualatin River side channel is the main hydrologic feature of the wetland. Woody (Oregon Ash) vegetation dominates along the channel, which is bordered by an emergent wetland community. Backwater flooding is evidenced by the existence of drift lines. Habitat for fish & wildlife are present. Hydrology and water quality functions are intact.

**CITY OF CORNELIUS  
LOCAL SIGNIFICANT WETLAND (LSW) CRITERIA CHECKLIST**

**Wetland Identification: TR-1**

**A. “OUT” Test**

Y	N	Wetlands that score “Yes” in any of the following categories do not proceed to Section B.
	X	Wetlands artificially created entirely from upland that is: <ul style="list-style-type: none"> <li>a. created for the purpose of controlling, storing, or maintaining stormwater;</li> <li>b. active surface mining ponds;</li> <li>c. ditches without free and open connection to waters of the state and without fish;</li> <li>d. &lt; 1 acre and unintentionally created from irrigation leak or construction activity;</li> <li>e. of any size and created for the purpose of wastewater treatment, shock watering, settling of sediment, cooling industrial water, or as a golf course hazard.</li> </ul>
	X	Documented as being contaminated by hazardous substances, materials or wastes (“Hazmat sites”).

**B. “IN” Test**

Y	N	Wetlands that meet ONE OR MORE of the following criteria are LSWs.
X		Wetlands that score the highest rank (stated in italics below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: <ul style="list-style-type: none"> <li><u>      </u> <i>diverse</i> wildlife habitat</li> <li><u>  X  </u> <i>intact</i> fish habitat</li> <li><u>      </u> <i>intact</i> water quality</li> <li><u>  X  </u> <i>intact</i> hydrologic control</li> </ul>
	X	Wetlands that are rated in the second highest functional category for water quality (called <i>impacted or degraded</i> in OFWAM), <u>AND</u> that occur within 1/4 mile of a water quality-limited stream listed by DEQ.
	X	Contain one or more rare/uncommon wetland plant communities in Oregon. (most concise list is found as Appendix G in OFWAM)
	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 rates in the second highest functional category for fish habitat (called <i>impacted or degraded</i> in OFWAM), and has a surface water connection to stream segment that is mapped by ODFW as habitat for “indigenous anadromous salmonids”.
	X	OPTIONAL CRITERION (at discretion of local government): Wetland represents a <b>LOCALLY</b> unique plant community.
	X	OPTIONAL CRITERION (at discretion of local government): Wetland rates highest rank for education potential and there is documented use for educational purposes by a school or organization

\* **Wetland does meet the criteria for consideration as significant, per Section B, “IN” Test.**



T1S R3W SECTION 04

City of Cornelius  
Local  
Wetland Inventory

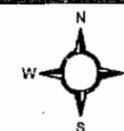
Wetland Site: TR-2

**Legend**

- X Sample Plot
- ∩ Railroad
- ∩ Streets
- ∩ Drainage Ditch
- ∩ Stream
- Wetland
- ▨ Adjacent Parcels
- Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

1:2400  
40 0 40 Feet



Washington County Oregon  
Information Current as of:  
**November 2002**

## CITY OF CORNELIUS LWI COVER SHEET

<b>Wetland Identification:</b> TR-2	<b>Date of Field Verification:</b> May 8, 2002
<b>Investigators:</b> KV, JG (DSL)	<b>Size (acres):</b> @ 6.30
<b>Data Sheet:</b> TR-2-1	<b>Cowardin Classification:</b> PEM
	<b>HGM Classification:</b> Slope Wetland

### LOCATION

Map # 1S3-04AD      Tax Lot #'s 600, 800, 5500 (Tr. B), 3200 (Tr. A)  
 Map # 1S3-04DA      Tax Lot # 2100 (Tr. B)

**Other:**            North of Tualatin River; bisects Nuttal Estates, Danielle Park and Behrman's Place subdivision.

**Basin:**            Tualatin River

### QUALITY

OAR 141-086-0185 states that a wetland function and condition assessment using the *Oregon Freshwater Wetland Assessment Methodology (OFWAM)* shall be conducted to determine the quality and significance of the wetland. *OFWAM* results for TR-2 indicate the functions for water quality is intact and this satisfies the Locally Significant Wetland Criteria identified in OAR 141-86-350.

**Soils:**            **Mapped Series:** Cove Silty Clay Loam

**Hydrology**      **Hydrologic Source:** Surface Flow

### **Dominant Wetland Vegetation**

<b>TREES</b>	<b>SHRUBS</b>	<b>VINES</b>	<b>HERBS</b>
<i>Fraxinus latifolia</i>	<i>Rosa sp.</i>		<i>Phalaris arundinacea</i>

### QUANTITY

The perennial stream associated with this wetland is a tributary to the main stem of the Tualatin River. This is the largest contiguous wetland area within the City on the Tualatin River drainage. A portion of this wetland area is owned by the City of Cornelius, one of the very few in public ownership.

### **COMMENTS:**

North portion is private property – off site. Site narrows to culvert due to topography. Vegetation dominated by alopecurus pratensis. DSL Waterway Project Permits, RF-11001, 96-0171 and 02-0594.

### **Wetland Classifications Codes:**

PEM – Palustrine Emergent    PFO – Palustrine Forested    PSS – Palustrine Scrub-Shrub  
 PUB – Palustrine Unconsolidated Bottom



DIVISION OF STATE LANDS - WETLAND DETERMINATION DATA FORM

County: Washington Date: 5/8/02 File # TR-2  
 Project/Contact: \_\_\_\_\_ Det. by: KU, JLG  
 Plant Community: \_\_\_\_\_ Plot # \_\_\_\_\_  
 Plot location: Walt Frazier of Swale MA located North of Tualatin River  
 Do normal environ. conditions exist? Y N Explain: \_\_\_\_\_  
 Has Veg. Soil \_\_\_\_\_ Hydrology \_\_\_\_\_ been significantly disturbed?  
 Explain: \_\_\_\_\_

VEGETATION

Dominant Species	Status	% Cover	Dominant Species	Status	% Cover
Tree Stratum			Herb Stratum		
Total Cover:		<u>10%</u>	Total Cover:		<u>100%</u>
1. <u>Fraxinus latifolia</u>	<u>Forc</u>	<u>100</u>	1. _____		
2. _____			2. <u>Phalaris arundinacea</u>	<u>Forc</u>	<u>100</u>
3. _____			3. _____		
4. _____			4. _____		
Sapling/Shrub Stratum			5. _____		
Total Cover:		<u>10%</u>	6. _____		
1. <u>Rosa sp</u>			7. _____		
2. _____			8. _____		
3. _____			9. _____		
4. _____			10. _____		
5. _____					

Percent of Dominant Species that are OBL, FACW, FAC (not FAC-): 100%  
 Other Notable Species: \_\_\_\_\_  
 Criteria Met? YES  NO

SOILS

Map Unit Name: Cove Silty Clay Loam Drainage Class: Poorly Drained  
 Taxonomy: Fine, montmorillonitic, mic. On Hydric Soils List? Y X N  
Vertic Haplaquolls

Depth	Horizon	Matrix Color	Redox Concentrations*	Redox Depletions*	Texture	Structure
<u>0-12</u>		<u>2.5y 2.5/1</u>				

Hydric Soil Indicators:

- |   |   |
|---|---|
| <input type="checkbox"/> Histosol   | <input type="checkbox"/> Concretions/Nodules (w/in 3"; > 2mm)             |
| <input type="checkbox"/> Histic Epipedon  | <input type="checkbox"/> High organic content in surface (in Sandy Soils) |
| <input checked="" type="checkbox"/> Sulfidic Odor                                 | <input type="checkbox"/> Organic streaking (in Sandy Soils)               |
| <input type="checkbox"/> Reducing Conditions (tests positive)                     | <input type="checkbox"/> Organic pan (in Sandy Soils)                     |
| <input checked="" type="checkbox"/> Gleyed / low chroma                           | <input type="checkbox"/> Listed on Hydric Soils List                      |
| <input type="checkbox"/> Redox. features (w/in 10")                               | <input type="checkbox"/> Other: _____                                     |
| Criteria Met? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> | * abund./size/contrast/color/location (matrix or pores/peds)              |

HYDROLOGY

Recorded Data  
 Recorded Data Available: \_\_\_\_\_ Aerial Photos  Stream gauge  Other  
 No Recorded Data Available  
 Field Data  
 Depth of inundation: \_\_\_\_\_ Depth to Saturation: surface Depth to free water: 4"

Primary Hydrology Indicators:

- Inundated  
 Saturated in upper 12 inches  
 Water Marks  
 Drift Lines  
 Sediment Deposits  
 Drainage Patterns  
 Criteria Met? YES  NO

Secondary Hydrology Indicators (2 or more required):

- Oxidized Root Channels (upper 12")  
 Water-stained Leaves  
 Local Soil Survey Data  
 FAC-Neutral Test  
 Other: \_\_\_\_\_

DETERMINATION

WETLAND? YES  NO  Comments: North portion private property - offsite. Verification narrows to culvert due to top dominated by *Dioecroon pratensis*. Stream is ditches through riparian in this area.

**CITY OF CORNELIUS**

**OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY**

Date: May 8, 2002

Wetland Identification: TR-2

Investigators: KV, JG (DSL)

Wildlife Habitat	Fish Habitat - Streams	Fish Habitat - Lakes/Ponds	Water Quality	Hydrologic Control
Q1 - A	Q1 - C		Q1 - A	Q1 - A
Q2 - C	Q2 - B		Q2 - A	Q2 - A
Q3 - C	Q3 - A		Q3 - A	Q3 - B
Q4 - C	Q4 - A		Q4 - B	Q4 - C
Q5 - A	Q5 - C		Q5 - A	Q5 - C
Q6 - A	Q6 - C		Q6 - C	Q6 - B
Q7 - A				Q7 - A
Q8 - C				
Q9 - C				

Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality
Q1 - A	Q1 - A	Q1 - A	Q1 - B	Q1 - B
Q2 - B	Q2 - A	Q2 - B	Q2 - C	Q2 - B
Q3 - C	Q3 - C	Q3 - B	Q3 - B	Q3 - B
Q4 - A	Q4 - B	Q4 - C	Q4 - B	Q4 - B
Q5 - A	Q5 - C	Q5 - A	Q5 - A	Q5 - A
Q6 - B	Q6 - B	Q6 - B	Q6 - B	Q6 - A

<b>Wildlife Habitat</b>	The wetland provides habitat for some wildlife species.
<b>Fish Habitat - Streams</b>	The wetland's fish habitat function is impacted/degraded.
<b>Fish Habitat - Lakes/Ponds</b>	N/A
<b>Water Quality</b>	The wetland's water quality function is impacted.
<b>Hydrologic Control</b>	The wetland's hydrologic control function is impacted/degraded.
<b>Sensitivity to Impact</b>	The wetland is potentially sensitive to future impacts.
<b>Enhancement Potential</b>	The wetland has moderate potential for enhancement.
<b>Education</b>	The wetland has potential for educational use.
<b>Recreation</b>	The wetland has potential for recreation opportunities.
<b>Aesthetic Quality</b>	The wetland is considered moderately pleasing.

# City of Cornelius Wetland Inventory Summary Sheet

Wetland Site: TR-2, Tualatin River

<u>Function</u>	<u>Evaluation Descriptor</u>	<u>Rationale</u>
<b>Wildlife Habitat</b>	Provides some wildlife habitat.	Two Cowardin classes present; emergent vegetation/wet meadow is the dominant cover; wetland is connected to a perennial stream; developed uses are the dominant uses abutting the wetland.
<b>Fish Habitat</b>	Fish habitat is impacted or degraded.	Less than 50% of stream is shaded; portions of the stream channel has been modified; more than 25% of the stream contain floating submerged vegetation; no fish have been documented to be present in the stream.
<b>Water Quality</b>	Water Quality is impacted.	Primary source of water is surface flow; over 60% of the wetland has vegetation cover; wetland is between 0.5 and 5 acres; evidence of ponding during a portion of growing season; no upstream reaches are listed as <i>water quality limited</i> .
<b>Hydrologic Control</b>	Hydrology is impacted or degraded.	All or part of the wetland is located in the 100 yr floodplain; wetland area is between 0.5 and 5 acres; wetland outlet has unrestricted flow; emergent vegetation/wet meadow is dominant cover; dominant downstream uses are agriculture; dominant upstream use is urban.
<b>Sensitivity to Future Impacts</b>	Potentially sensitive to impacts.	The adjacent stream bank has been modified by human activities; no water is being taken out upstream for irrigation, etc.; upstream reaches are not listed as water quality limited; residential use is adjacent to the wetlands.
<b>Enhancement Potential</b>	Wetland has moderate potential for enhancement.	The fish habitat and hydrology functions are impacted or degraded;

		surface flow stream is the primary source of water; flow into wetland is restricted; less than 10% of the wetland's edge is bordered by a vegetative buffer 25 feet or more in width.
<b>Education</b>	Wetland has educational potential.	The wetland does have a public access or an observation area; one or two visible safety hazards exist; the wetland does provide some fish & wildlife habitat; no ADA access exists.
<b>Recreation</b>	Has potential for some recreation.	An unmaintained public access point exists; no trails or boat launching areas exist; some wildlife habitat does exist; fishing is allowed, but no fish population documented.
<b>Aesthetic Quality</b>	Aesthetics are moderately pleasing.	Two Cowardin classes are visible; there is an unmaintained viewing area; one or two visual detractors exist; the visual character of the surrounding area has been landscaped or manipulated by people; the wetland is adjacent to residential uses so some odors and noise with conflict with natural sounds and smells.

**Narrative Description of Overall Wetland Functions and Conditions**

The perennial stream in this wetlands flows from northwest to southeast and daylight as it enters this swale and wetland area. The vegetation does progress from mostly emergent vegetation to scrub-shrub to woody species. From approximately the mid-point of wetland downstream to the City boundary the land is owned by the City of Cornelius. Once the stream leaves the City and accesses adjacent agriculture land it's flow diminishes before it reaches the Tualatin River. This site has the potential to be enhanced for wildlife, water quality, recreation and education.

**CITY OF CORNELIUS  
LOCAL SIGNIFICANT WETLAND (LSW) CRITERIA CHECKLIST**

**Wetland Identification: TR-2**

**A. “OUT” Test**

Y	N	Wetlands that score “Yes” in any of the following categories do not proceed to Section B.
	X	Wetlands artificially created entirely from upland that is: <ul style="list-style-type: none"> <li>a. created for the purpose of controlling, storing, or maintaining stormwater;</li> <li>b. active surface mining ponds;</li> <li>c. ditches without free and open connection to waters of the state and without fish;</li> <li>d. &lt; 1 acre and unintentionally created from irrigation leak or construction activity;</li> <li>e. of any size and created for the purpose of wastewater treatment, shock watering, settling of sediment, cooling industrial water, or as a golf course hazard.</li> </ul>
	X	Documented as being contaminated by hazardous substances, materials or wastes (“Hazmat sites”).

**B. “IN” Test**

Y	N	Wetlands that meet ONE OR MORE of the following criteria are LSWs.
	X	Wetlands that score the highest rank (stated in italics below) for any of the four ecological functions addressed by OFWAM or equivalent methodology: <ul style="list-style-type: none"> <li>___ <i>diverse</i> wildlife habitat</li> <li>___ <i>intact</i> fish habitat</li> <li>___ <i>intact</i> water quality</li> <li>___ <i>intact</i> hydrologic control</li> </ul>
	X	Wetlands that are rated in the second highest functional category for water quality (called <i>impacted or degraded</i> in OFWAM), <u>AND</u> that occur within 1/4 mile of a water quality-limited stream listed by DEQ.
	X	Contain one or more rare/uncommon wetland plant communities in Oregon. (most concise list is found as Appendix G in OFWAM)
	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 rates in the second highest functional category for fish habitat (called <i>impacted or degraded</i> in OFWAM), and has a surface water connection to stream segment that is mapped by ODFW as habitat for “indigenous anadromous salmoids”.
	X	OPTIONAL CRITERION (at discretion of local government): Wetland represents a <b>LOCALLY</b> unique plant community.
	X	OPTIONAL CRITERION (at discretion of local government): Wetland rates highest rank for education potential and there is documented use for educational purposes by a school or organization

\* **Wetlands do meet the criteria for a Local Significant Wetland**

**POSSIBLE WETLAND AREAS IDENTIFIED FROM REFERENCE  
MAPS AND DRIVE BY SITE VISITS.**

**NO ON-SITE ANALYSIS WAS POSSIBLE, BOTH SITE ARE IN  
AGRICULTURAL USE**

T1N R3W SECTION 33

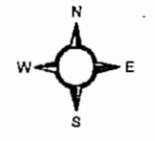
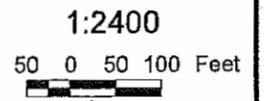
City of Cornelius  
Local  
Wetland Inventory

Wetland Site: PW-1 & PW-2

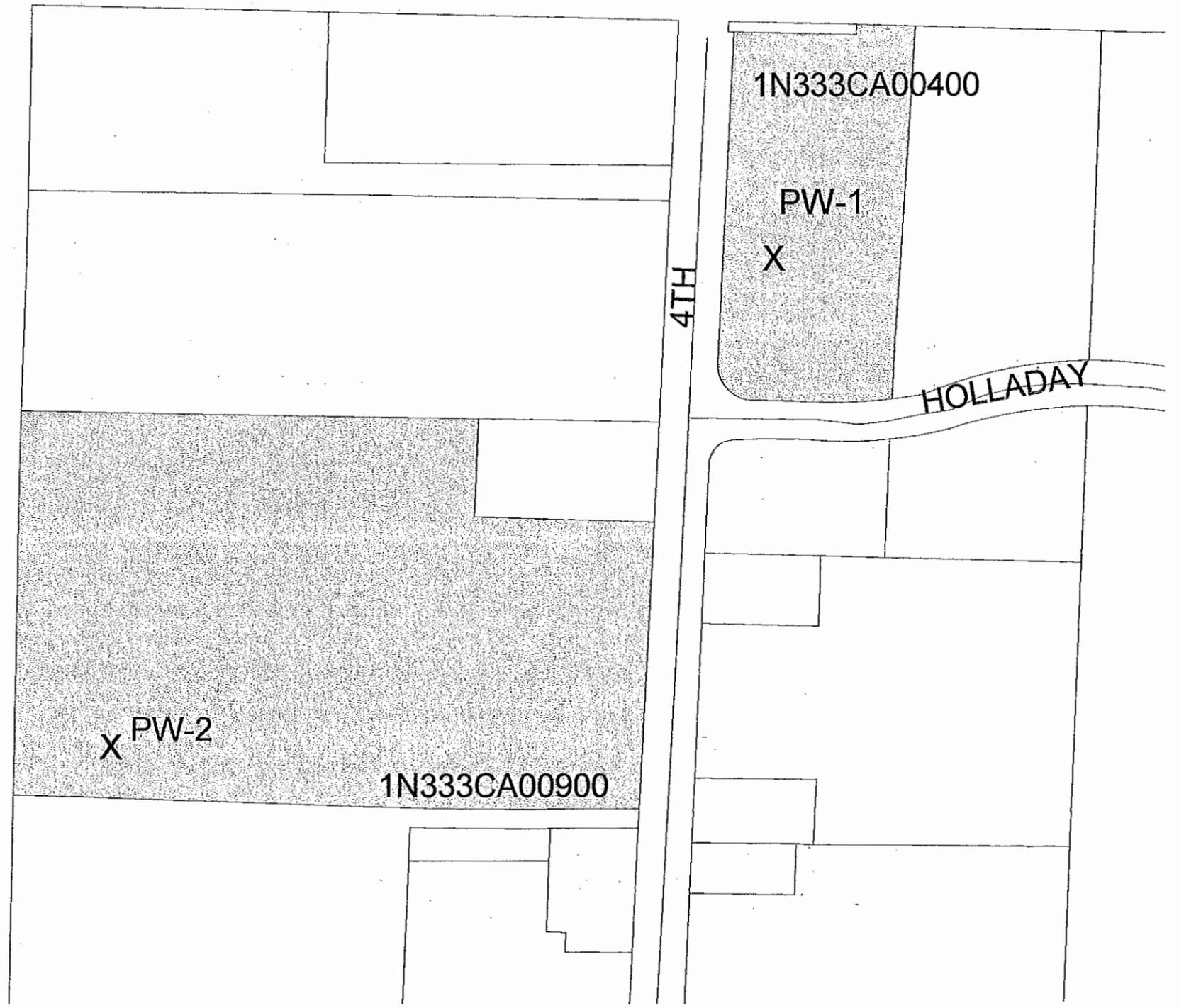
Legend

- X Sample Plot
- ∩ Railroad
- ∩ Streets
- ∩ Drainage Ditch
- ∩ Stream
- ▭ Wetland
- ▨ Adjacent Parcels
- Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.



Washington County Oregon  
Information Current as of:  
**November 2002**



## CITY OF CORNELIUS LWI COVER SHEET

<b>Wetland Identification:</b> PW-1	<b>Date of Field Verification:</b> May 8, 2002
<b>Investigators:</b> KV, JG (DSL)	<b>Size (acres):</b>
<b>Data Sheet:</b> No Access	<b>Wetland Classification:</b>

### Location

**Legal:** Map # 1S3-33CA Tax Lot # 400

**Other:** East of terminus of N. 4<sup>th</sup> Avenue; undeveloped industrial zoned land.

**Basin:** Council Creek

### Soils

**Mapped Series:** Verboort Silty Clay Loam

### Hydrology

**Hydrologic Source:**

### Dominant Wetland Vegetation

TREES	SHRUBS	VINES	HERBS
			Field Crops

### Comments:

There is potential for wetlands to be found on this property, based on the soils maps indicating hydric conditions. The property was planted in agriculture field crops and there was no access permitted for field testing. The topography indicates a slight depression to the northwest corner of the property.

### **Wetland Classifications Codes:**

PEM – Palustrine Emergent    PFO – Palustrine Forested    PSS – Palustrine Scrub-Shrub  
 PUB – Palustrine Unconsolidated Bottom

**CITY OF CORNELIUS LWI COVER SHEET**

<b>Wetland Identification:</b> PW-2	<b>Date of Field Verification:</b> May 8, 2002
<b>Investigators:</b> KV, JG (DSL)	<b>Size (acres):</b>
<b>Data Sheet:</b> No Access	<b>Wetland Classification:</b>

**Location**

**Legal:** Map # 1N3-34CA Tax Lot # 900

**Other:** East of terminus of N. 4<sup>th</sup> Avenue; undeveloped industrial zoned land.

**Basin:** Council Creek

**Soils**

**Mapped Series:** Huberly Silt Loam

**Hydrology**

**Hydrologic Source:**

**Dominant Wetland Vegetation**

TREES	SHRUBS	VINES	HERBS
			Field Crops

**Comments:**

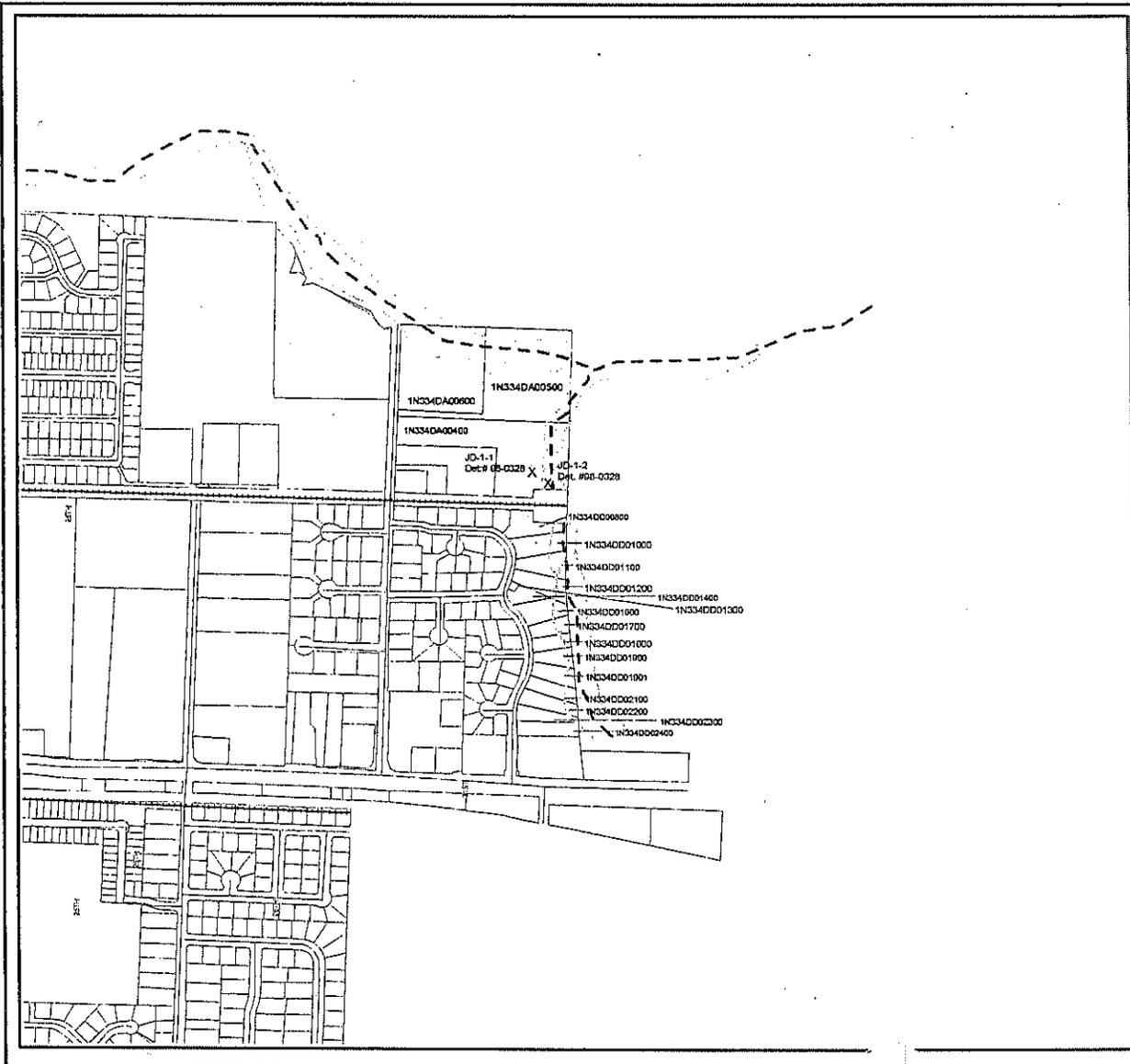
There is potential for wetlands to be found on this property, based on the soils maps indicating hydric conditions. The property was planted in agriculture field crops and there was no access permitted for field testing. The topography indicates a slight depression to the southwest corner of the property.

**Wetland Classifications Codes:**

PEM – Palustrine Emergent    PFO – Palustrine Forested    PSS – Palustrine Scrub-Shrub  
 PUB – Palustrine Unconsolidated Bottom

# Appendix C

## WETLAND MAPS



T1N R3W SECTION 34

City of Cornelius  
 Local  
 Wetland Inventory  
 Wetland Site: JD-1

Legend

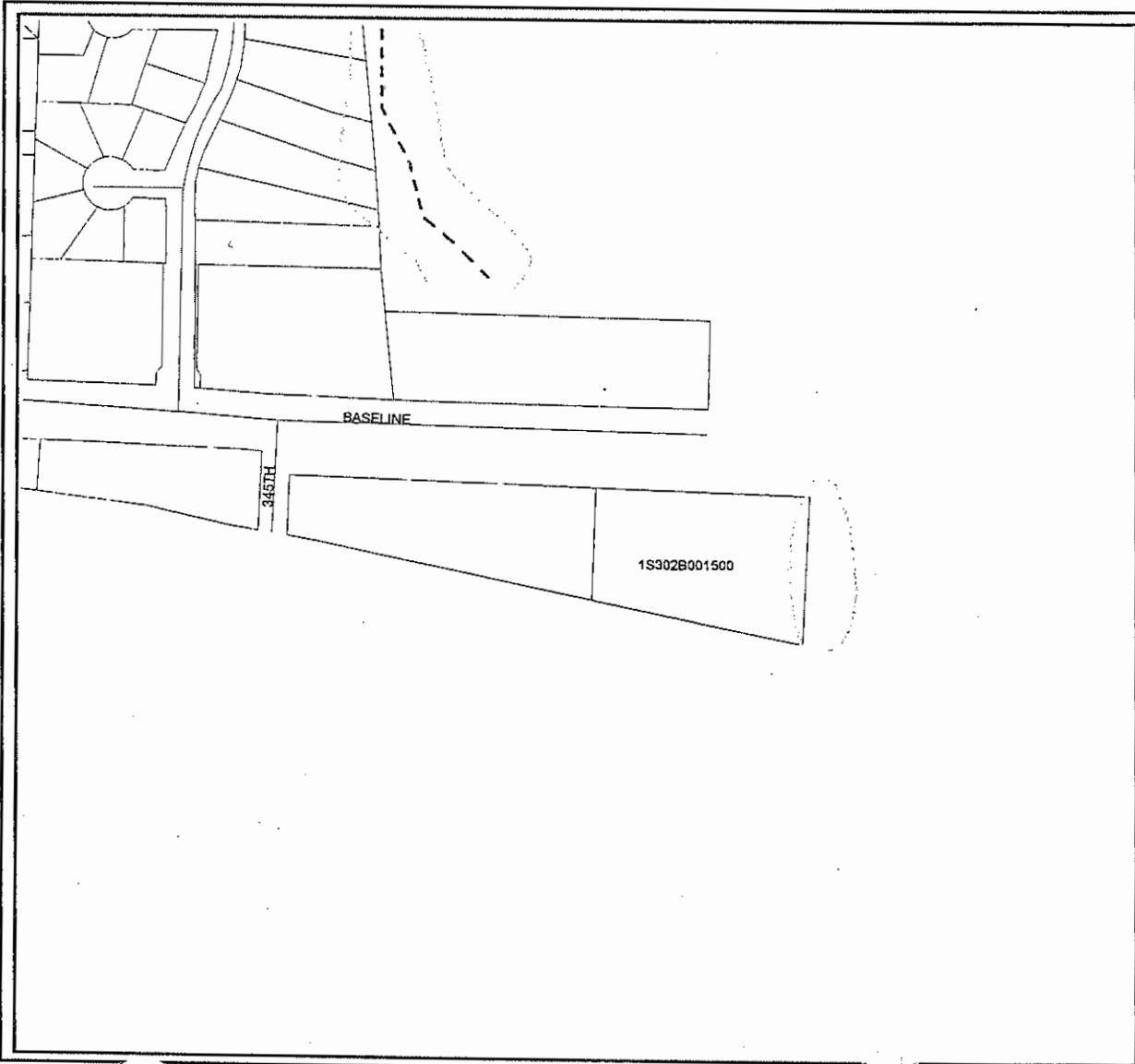
- X Sample Plot
- ∩ Railroad
- ∩ Streets
- ∩ Drainage Ditch
- ∩ Stream
- Wetland
- Adjacent Parcels
- Tax Lots

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1:7200  
 100 0 100 Feet



Washington County Oregon  
 Information Current as of:  
 November 2002



T1S R3W SECTION 02

City of Cornelius  
Local  
Wetland Inventory

Wetland Site: JD-2

**Legend**

- X Sample Plot
- ∩ Railroad
- ∩ Streets
- ∩ Drainage Ditch
- ∩ Stream
- Wetland
- Adjacent Parcels
- Tax Lots

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1:2400

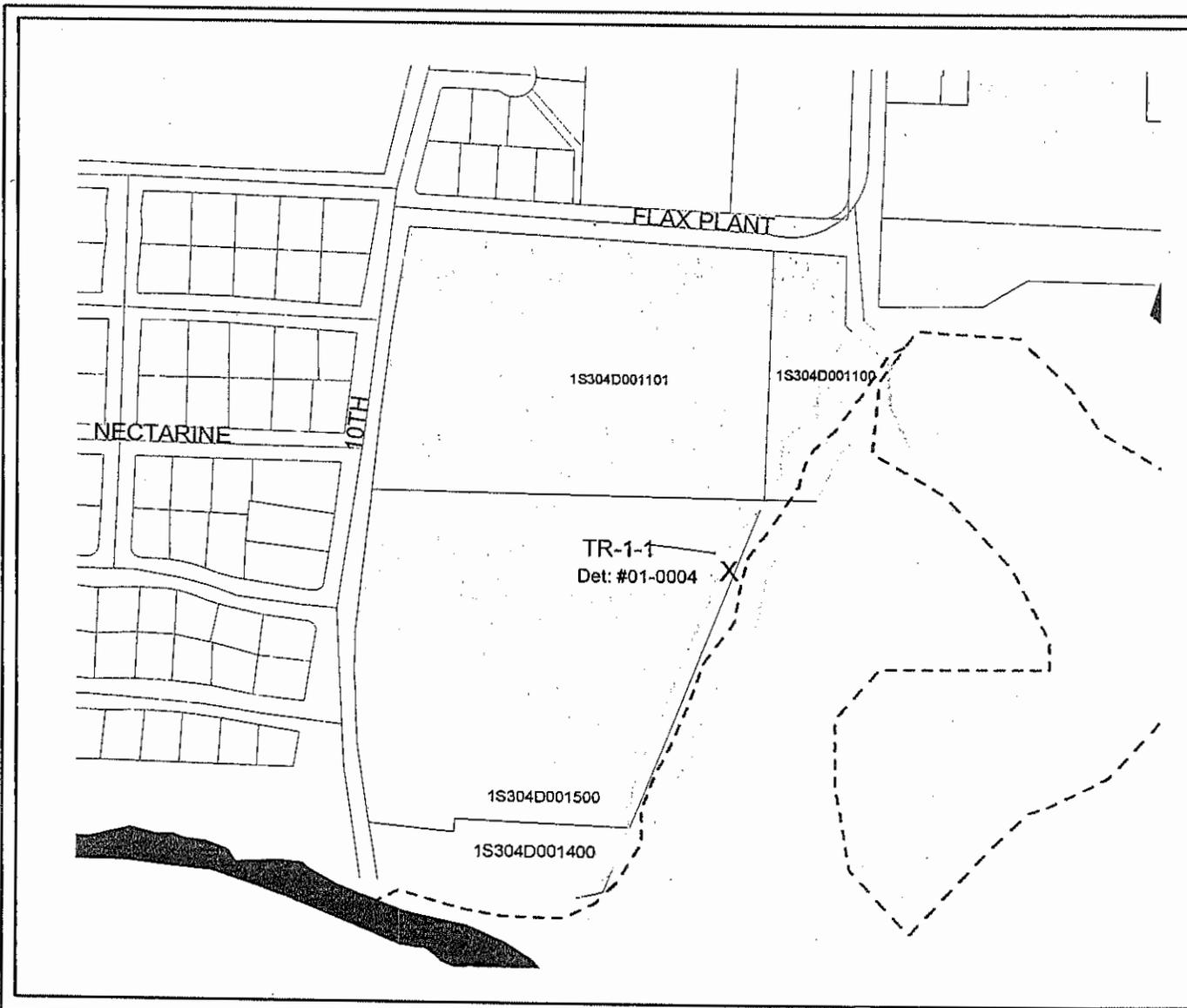
100 0 100 Feet



Washington County Oregon

Information Current as of:

November 2002



T1S R3W SECTION 04

City of Cornelius  
Local  
Wetland Inventory

Wetland Site: TR-1

**Legend**

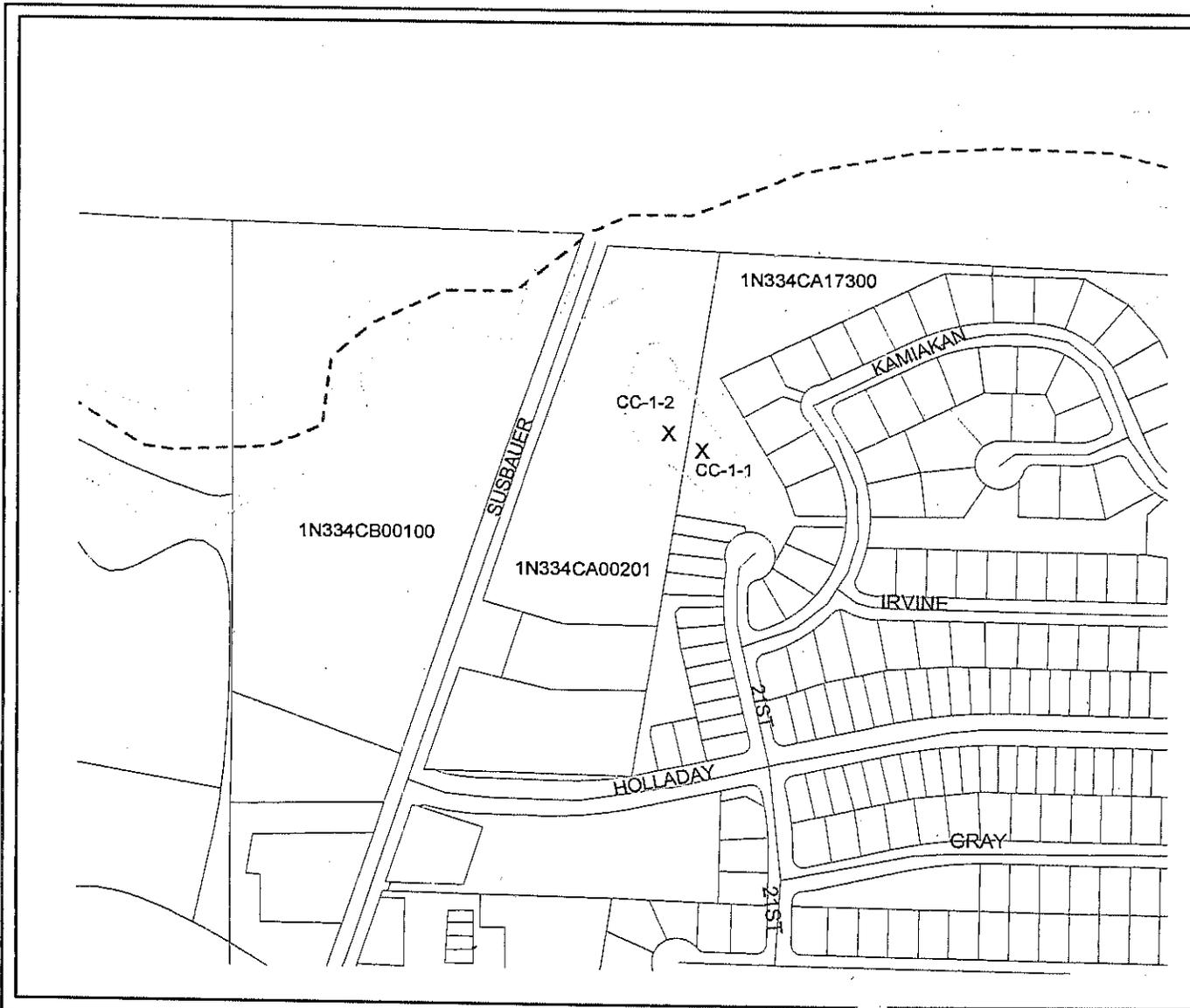
- X Sample Plot
- /— Railroad
- /— Streets
- /— Drainage Ditch
- /— Stream
- Wetland
- Adjacent Parcels
- Tax Lots

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1:2400  
50 0 50 100 Feet



Washington County Oregon  
Information Current as of:  
**November 2002**



T1N R3W SECTION 34

City of Cornelius  
Local  
Wetland Inventory

Wetland Site: CCDU-1

**Legend**

- X Sample Plot
- ▤ Railroad
- ▤ Streets
- ▤ Drainage Ditch
- ▤ Stream
- ▤ Wetland
- ▭ Adjacent Parcels
- ▭ Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

1:2400  
50 0 50 100 Feet



Washington County Oregon  
Information Current as of:  
**November 2002**

T1N R3W SECTION 33 & 34

City of Cornelius  
Local  
Wetland Inventory

Wetland Site: CC-1

Legend

- X Sample Plot
- ▬ Railroad
- ▬ Streets
- ▬ Drainage Ditch
- ▬ Stream
- Wetland
- Adjacent Parcels
- Tax Lots

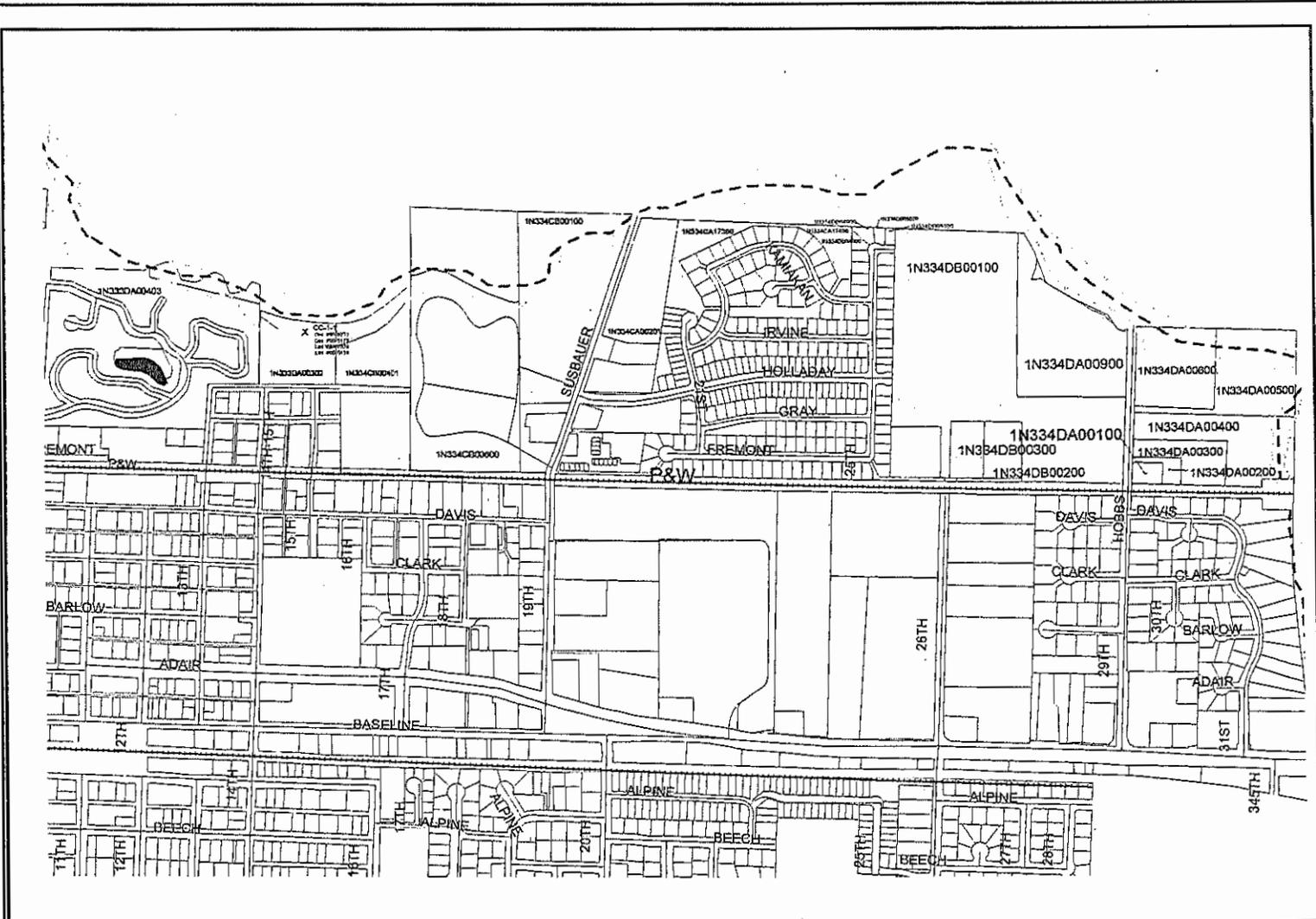
Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

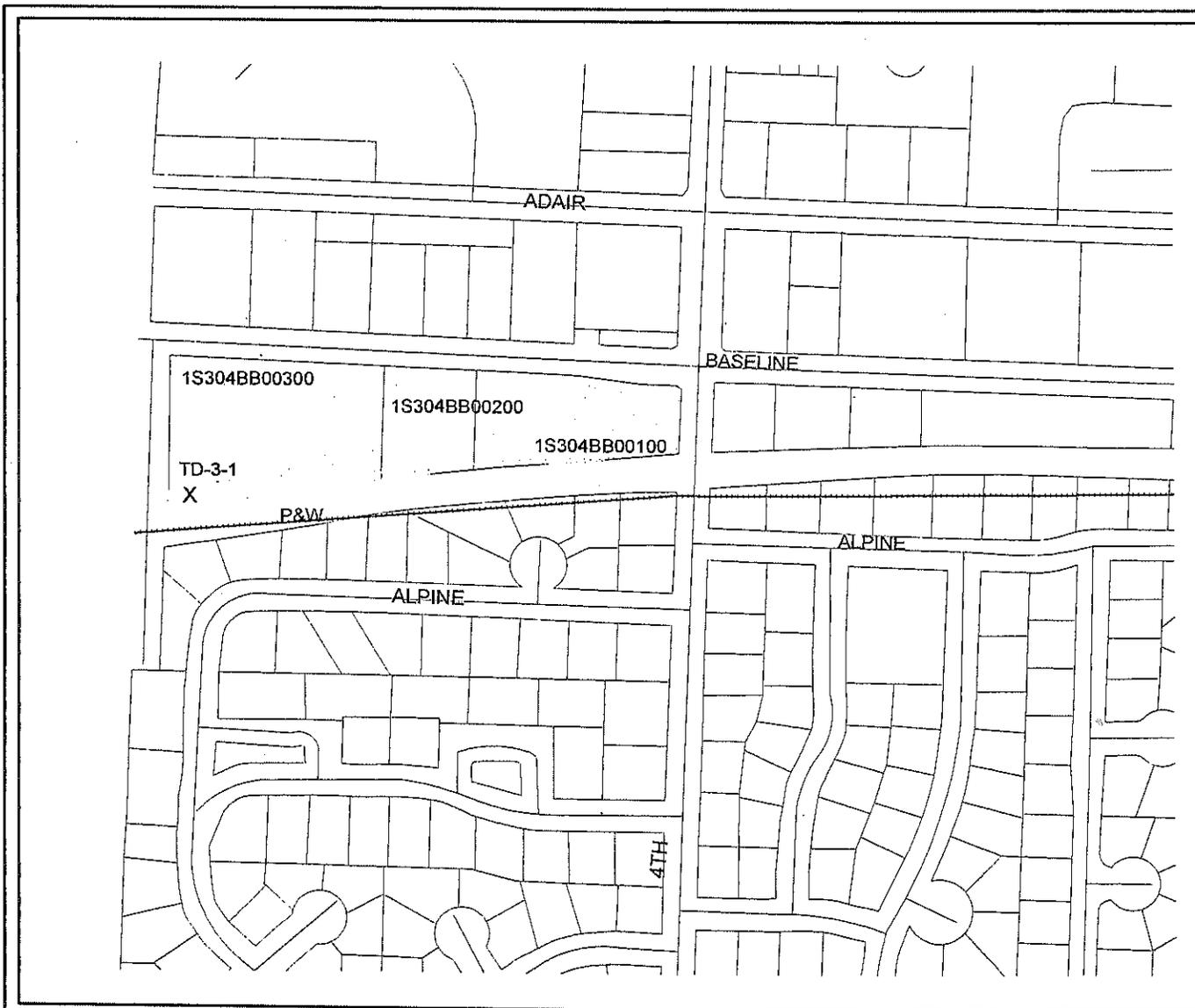
1:7200

90 0 90 180 Feet



Information Current as of:  
November 2002





T1S R3W SECTION 04

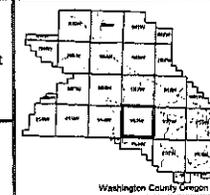
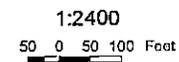
City of Cornelius  
Local  
Wetland Inventory

Wetland Site: TD-3

Legend

- X Sample Plot
- ▤ Railroad
- ▤ Streets
- ▤ Drainage Ditch
- ▤ Stream
- ▤ Wetland
- ▤ Adjacent Parcels
- ▤ Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.



Information Current as of:  
**November 2002**

T1S R3W SECTION 04

City of Cornelius  
Local  
Wetland Inventory

Wetland Site: TD-1

**Legend**

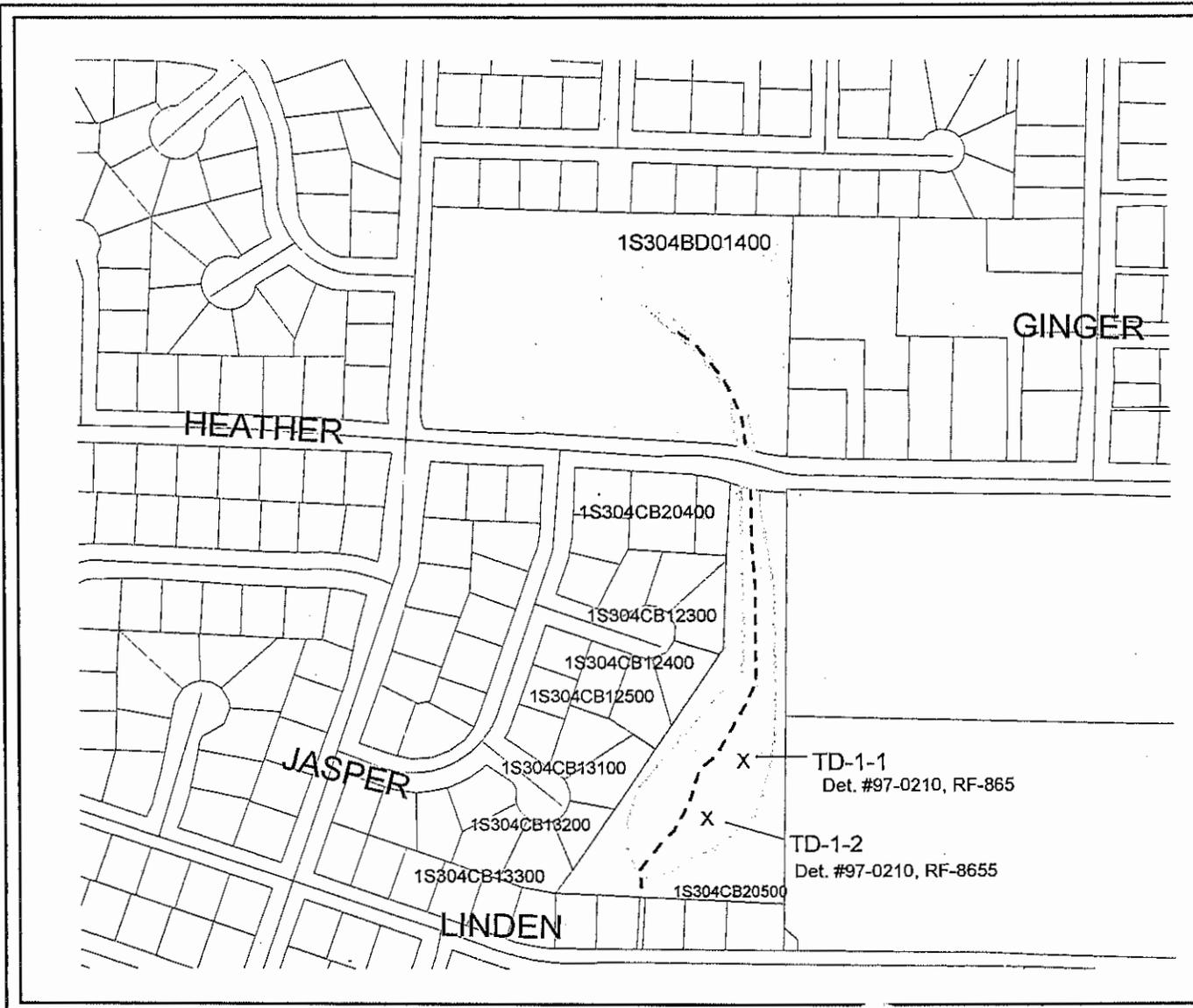
- X Sample Plot
- /— Railroad
- /— Streets
- /— Drainage Ditch
- /— Stream
- Wetland
- Adjacent Parcels
- Tax Lots

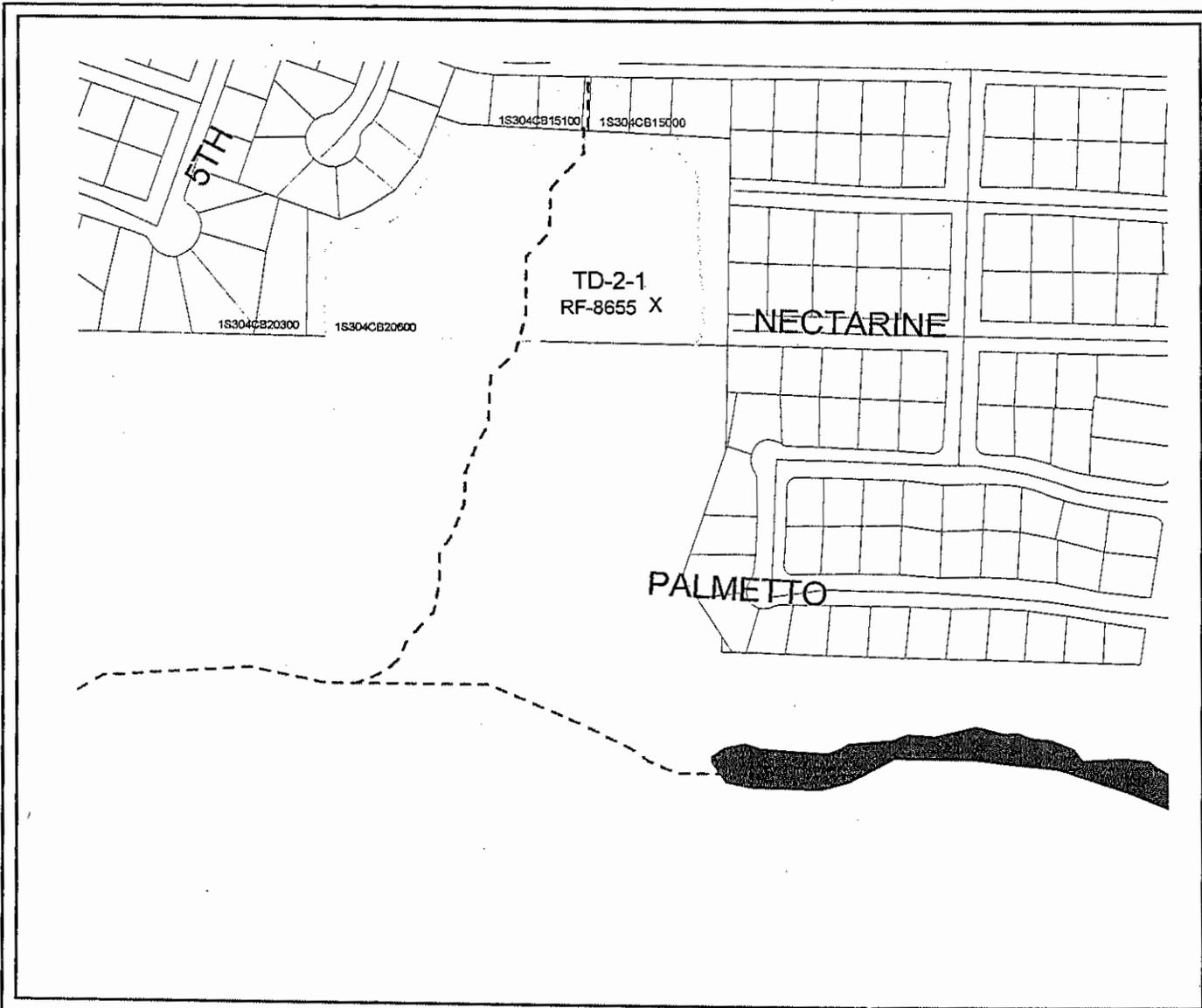
Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

1:2400  
50 0 50 100 Feet



Information Current as of:  
**November 2002**





T 1S. R3W SECTION 04

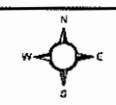
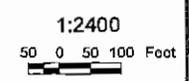
City of Cornelius  
Local  
Wetland Inventory

Wetland Site: TD-2

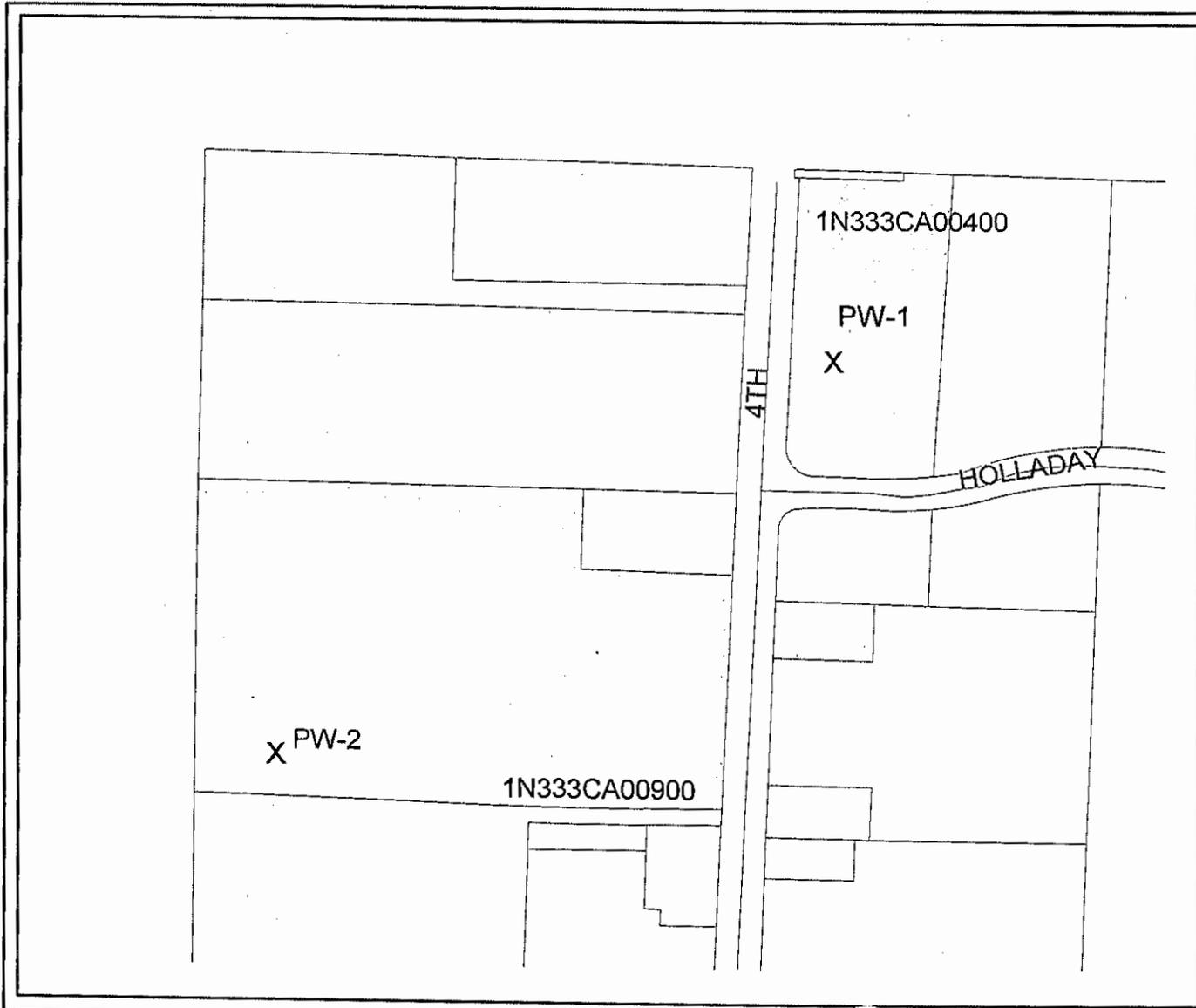
**Legend**

- X Sample Plot
- ▤ Railroad
- ▤ Streets
- ▤ Drainage Ditch
- ▤ Stream
- Wetland
- Adjacent Parcels
- Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.



Washington County Oregon  
Information Current as of:  
**November 2002**



T1N R3W SECTION 33

City of Cornelius  
Local  
Wetland Inventory

Wetland Site: PW-1 & PW-2

**Legend**

- X Sample Plot
- ∩ Railroad
- ∩ Streets
- ∩ Drainage Ditch
- ∩ Stream

**Wetland**

- Adjacent Parcels
- Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

1:2400  
50 0 50 100 Feet



Washington County Oregon  
Information Current as of:  
**November 2002**

## Appendix D

### **TUALATIN RIVER & DIARY CREEK GAGING STATION DATA – WASHINGTON COUNTY WATERMASTER RECORDS**


**Watermaster**

Washington County, Oregon


[Back to the Watermaster home page](#)

 District 18 : Tualatin River at Golf Course Road near  
Cornelius, OR

Station Selection


**Station Number:** 14204800  
**Basin:** 2  
**Hydrological Unit:** 17090010  
**Hydrological Name:** Tualatin Basin  
**Township:** 1 South  
**Range:** 3 West  
**Section:** 9 NE 1/4 NE 1/  
**Mile Mark:** 51.50  
**Gauge Datum:** 126.19 feet msl  
**Equipment Installed:**

Stevens Axsys System Digital Input MPU  
 Recorder  
 Stevens Stand-Alone Pulse Generator  
 Encoder  
 Stevens Environmental Modem 2400  
 Solarex MSX-10 solar panel  
 Stevens Porcelain Enameled Staff Gage (0  
 to 26 feet)

**Unofficial Flood Stage:** 145.84 feet  
**Unofficial Flood Stage Rate:** 2,134 cubic feet  
 per second  
**Flood Level:** 153.63 feet  
**Flood Level Year:** 1996

	Degrees	Minutes	Seconds	Direction
<b>Latitude:</b>	45	30	07.64183	N

	Degrees	Minutes	Seconds	Direction
<b>Longitude:</b>	123	03	22.42358	W

**Cooperators:** Clean Water Services, Tualatin Valley Irrigation District,  
 Lake Oswego Corporation

**Notes:** Gage is a stilling well-float installation on the upstream side of  
 the bridge near the right edge of water.



[Back to the Watermaster home page](#)

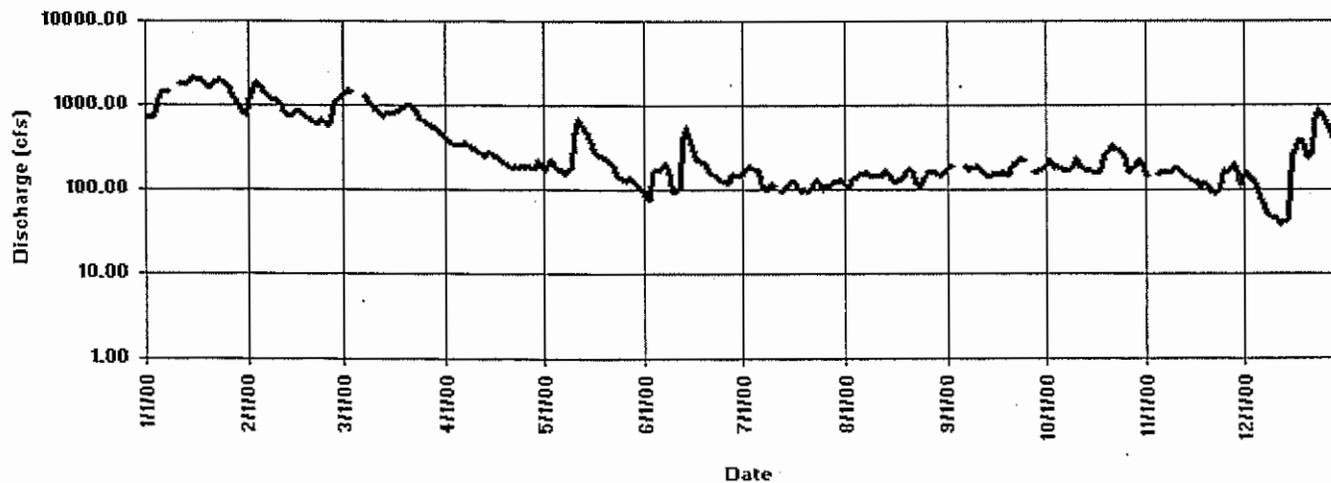
## Daily Report

[Back](#)

Provisional Data - Subject to revision  
Source Agency: Tualatin Basin Watermaster

### 2000 MEAN DAILY DISCHARGE Tualatin River at Golf Course Road near Cornelius, OR 14204800

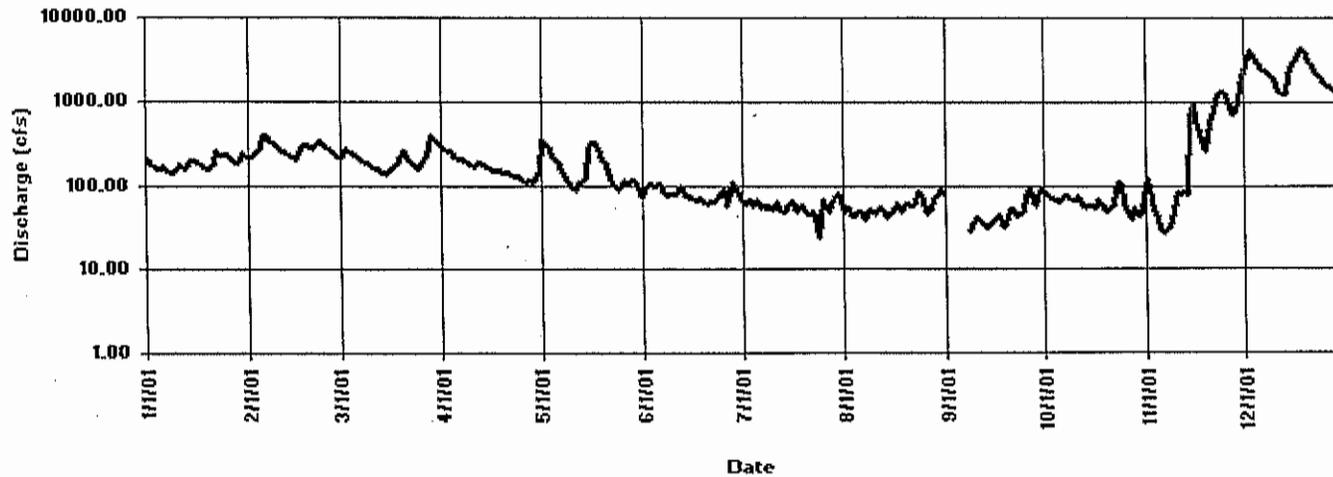
Stream Mile: 2.4



Provisional Data - Subject to revision  
Source Agency: Tualatin Basin Watermaster

2001 MEAN DAILY DISCHARGE  
Tualatin River at Golf Course Road near Cornelius, OR  
14204800

Stream Mile: 2.4



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Watermaster  
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Hillsboro, OR 97124

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E-Mail to: [darrell\\_hedin@co.washington.or.us](mailto:darrell_hedin@co.washington.or.us)



[Home](#)



[Departmental  
Index](#)



[Subject  
Index](#)



[Top  
of  
Page.](#)



**Watermaster**

Washington County, Oregon



[Back to the Watermaster home page](#)

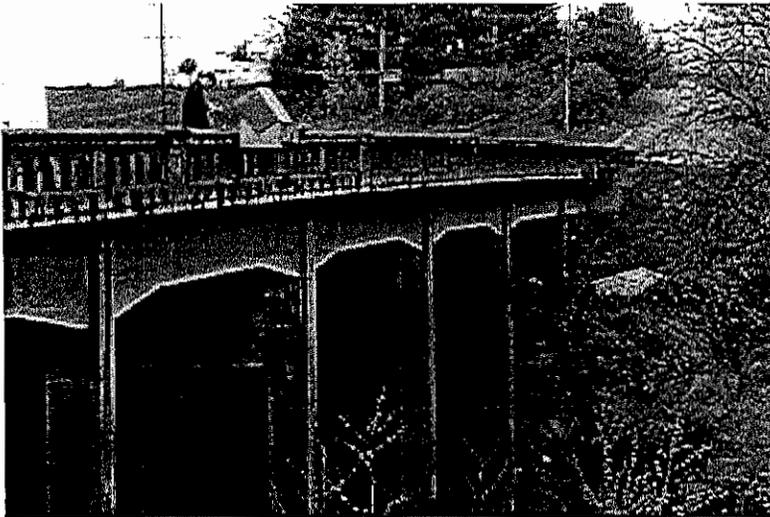
District 18 : Dairy Creek at Highway 8 near Hillsboro, OR

Station Selection

**Station Number:** 14206200  
**Basin:** 2  
**Hydrological Unit:** 17090010  
**Hydrological Name:** Tualatin Basin  
**Township:** 1 North  
**Range:** 3 West  
**Section:** 36, SW SW  
**Mile Mark:** 2.06  
**Gauge Datum:** 117.71 ft (above MSL)  
**Equipment Installed:**

Stevens Axsys System SDI-12 Input MPU Recorder  
 Rittmeyer SDI-12 Intelligent Pressure Transducer  
 Stevens Environmental Modem 2400  
 2 Solarex MSX-5 solar panels  
 Stevens Porcelain Enameled Staff Gage (from 0 to 26.66 ft)

**Unofficial Flood Stage:** 135.71 ft  
**Unofficial Flood Stage Rate:**  
**Flood Level:** 146.61 ft  
**Flood Level Year:** 1996



	Degrees	Minutes	Seconds	Direction
<b>Latitude:</b>	43	31	12.30325	N

	Degrees	Minutes	Seconds	Direction
<b>Longitude:</b>	123	00	38.91327	W

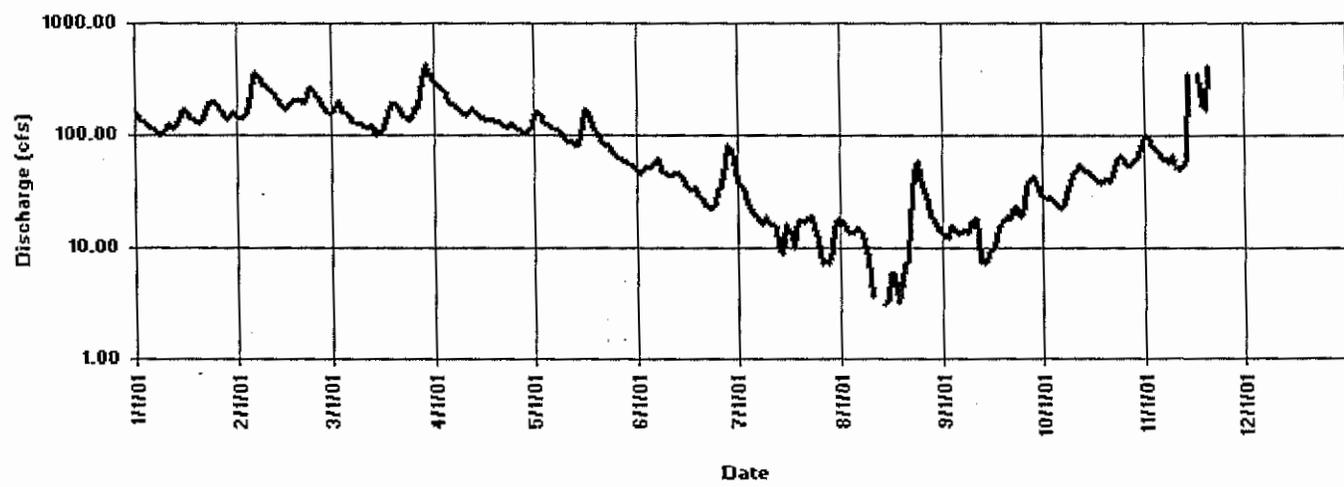
**Cooperators:** Clean Water Services, Tualatin Valley Irrigation District

**Notes:** This station is a pressure transducer installation on the upstream side of the Highway 8 bridge near the left edge of water.

Provisional Data - Subject to revision  
Source Agency: Tualatin Basin Watermaster

### 2001 MEAN DAILY DISCHARGE Dairy Creek at Hwy 8 near Hillsboro, OR 14206200

Stream Mile: 2.1



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Watermaster  
111 NE Lincoln Street Suite 220L  
Hillsboro, OR 97124

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Fax: (503) 846-4887  
TTY: (503) 846-4598  
E-Mail to: [darrell\\_hedin@co.washington.or.us](mailto:darrell_hedin@co.washington.or.us)



[Home](#)



[Departmental  
Index](#)



[Subject  
Index](#)



[Top  
of  
Page.](#)



Watermaster

Washington County, Oregon



[Back to the Watermaster home page](#)

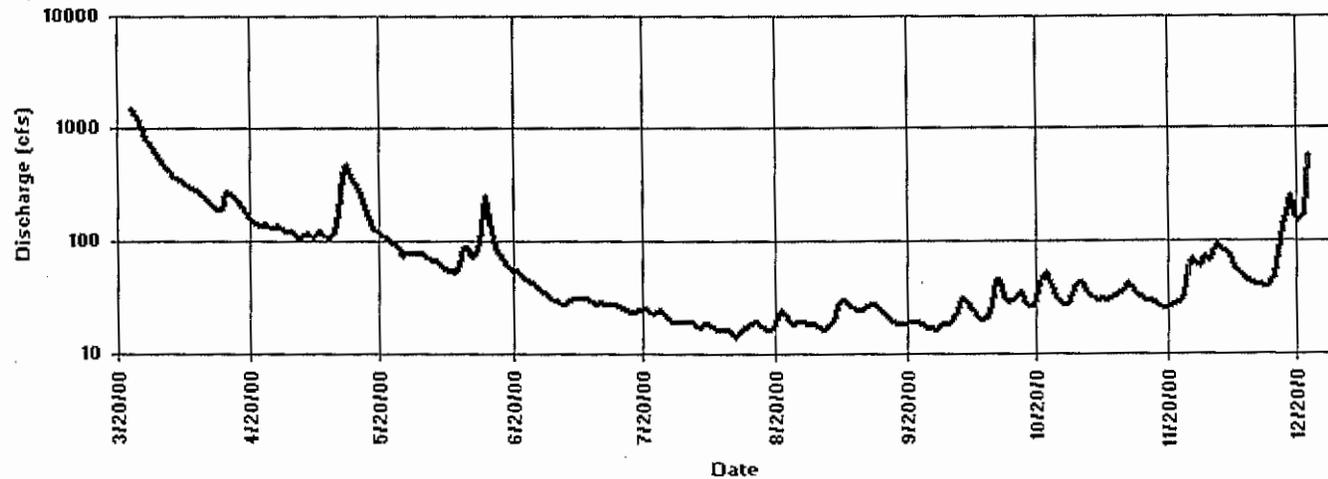
Daily Report

[Back](#)

Provisional Data - Subject to revision  
Source Agency: Tualatin Basin Watermaster

**2000 MEAN DAILY DISCHARGE**  
**Dairy Creek at Hwy 8 near Hillsboro, OR**  
**14206200**

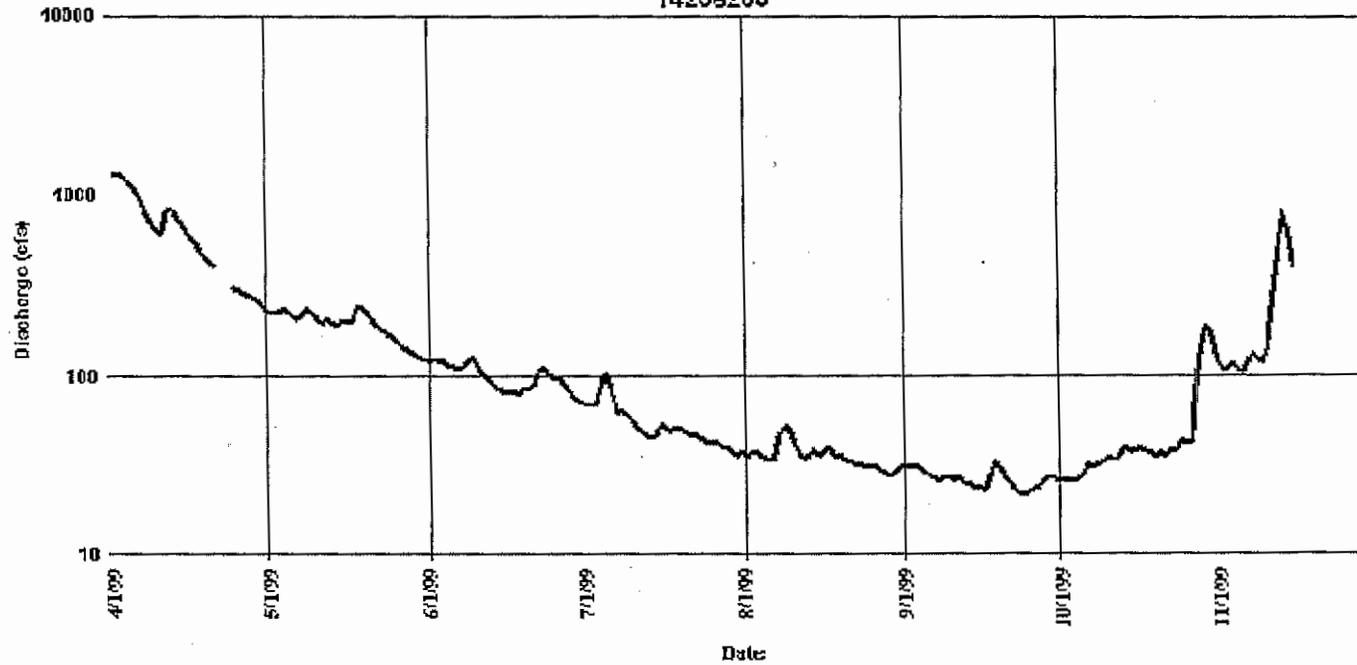
Stream Mile: 2.1



Provisional Data - Subject to revision.  
Source Agency: Tualatin Basin Watermaster

1999 MEAN DAILY DISCHARGE  
Dairy Creek at Hwy 8 near Hillsboro, OR  
14206200

Stream Mile: 2.1



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[Home](#)



[Departmental  
Index](#)



[Subject  
Index](#)



[Top  
of  
Page.](#)

## Appendix E

### **RIPARIAN AREA FUNCTIONS SUMMARY AND RIPARAIN AREA ASSESSMENT FORMS**

**RIPARIAN FUNCTIONAL AREA SUMMARY TABLE**

Riparian Code	Riparian Reach Length	Riparian Width	Water Quality	Flood Management	Thermal Regulation	Wildlife Habitat
LJD - 1	2800 feet	120 feet	Medium	Medium	Low	Medium
RJD - 1	2000 feet	120 feet	Medium	Medium	Low	Medium
RJD - 2	300 feet	30 feet	Medium	Medium	Low	Low
RCC-1A	1250 feet	120 feet	Medium	Medium	High	High
RCC-1B	3500 feet	120 feet	Medium	Medium	High	High
RCC-1C	3750 feet	90 feet	High	Medium	High	High
RCCDU1	300 feet	35 feet	Medium	Low	Low	Medium
LCCDU1	300 feet	35 feet	Medium	Low	Low	Medium
RTD - 1	730 feet	35 feet	Medium	Low	Medium	Medium
LTD - 1	730 feet	35 feet	High	Medium	Medium	High
RTD - 2	395 feet	35 feet	High	Medium	Low	Medium
LTD - 2	395 feet	35 feet	High	Medium	Low	Medium
RTD - 3	393 feet	30 feet	Medium	Low	Medium	Medium
LTD - 3	393 feet	90 feet	Medium	Low	Medium	Medium
LTR - 1	1900 feet	90 feet	High	High	Medium	High
LTR - 2	2000 feet	90 feet	High	Medium	Medium	High
RTR - 2	2000 feet	90 feet	High	Medium	High	High

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LJD-1  
Location: Map # 1N3-34DC Tax Lot #'s 105, 107  
Map # 1N3-34DD Tax Lot #'s 1000, 1100, 1200, 1400, 1600, 1700,  
1800, 1900, 1901, 2100, 2200, 2300, 2400, 8200

Drainage Basin: Council Creek

## Riparian Width Determination

Date: 4/28/02 Investigators: DR

Dominant Tree Species: Douglas Fir (*Pseudotsuga menziesii*)

Potential Tree Height: 120'

Width of Riparian Area: 120'

On-site vegetation: X Reference Site:

## Comments:

This riparian reach is divided into two distinct sections by the Portland/Western Railroad Line. The riparian area north of the railroad on the west side of the channel includes various canopy cover ranging from native tree and shrubs (Big Leaf Maple and Douglas Fir) to invasive plant cover (Himalayan Blackberry) to grasses and forbs (brome grass, white clover).

The riparian area south of the railroad line and west of the channel has been impacted and encroached on by a residential subdivision development, which includes landscaping and accessory uses (fences, sheds, play equipment, etc.).



# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LJD-1  
Location: Map # 1N3-34DC Tax Lot #'s 105, 107  
Map # 1N3-34DD Tax Lot #'s 1000, 1100, 1200, 1400, 1600, 1700,  
1800, 1900, 1901, 2100, 2200, 2300, 2400, 8200

Hydrologic Basin: Council Creek

## Riparian Characterization Form

Date: 4/28/02 Investigators: DR

On-site: X Off Site: Reach Length: @ 2800 feet

## Water Resource Information

Stream/River: Yes Width: 3' - 10'  
Lake/Pond: Yes Width: @ 50'  
Wetland: Yes Width: @75 - 200'

LWI Wetland Code: JD-1 Water Present Year-Round: Yes

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA mapped 100 year floodplain: Yes

Mapped soil series: Cove Silty Clay Loam, Quatama Loam, Xerochrepts & Haploxerolls

Adjacent Land Uses: Residential, State Highway and Railroad line.

## Woody Vegetation

Douglas Fir  
Big Leaf Maple  
Himalayan Blackberry

## Herbaceous Vegetation

Reed Canary Grass  
Brome grass  
Cat-tails

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LJD-1

Location: Map # 1N3-34DC Tax Lot #'s 105, 107  
Map # 1N3-34DD Tax Lot #'s 1000, 1100, 1200, 1400, 1600, 1700,  
1800, 1900, 1901, 2100, 2200, 2300, 2400, 8200

Hydrologic Basin: Council Creek

## Riparian Function Assessment Answer Sheet Results

### WATER QUALITY

Function Rating:

Question 1: 2

High

Question 2: 2

Medium X

Question 3: 2

Low

Question 4: 3

Question 5: 2

Total Points: 11

### FLOOD MANAGEMENT

Function Rating:

Question 6: 3

High

Question 7: 1

Medium X

Question 8: 1

Low

Total Points: 3

### THERMAL REGULATION

Function Rating:

Question 9: 1

High

Question 10: 2

Medium

Question 11: 1

Low X

Total Points: 4

### WILDLIFE HABITAT

Function Rating:

Question 12: 2

High

Question 13: 2

Medium X

Question 14: 1

Low

Question 15: 1

Question 16: 3

Question 17: 3

Question 18: 3

Question 19: 2

Total Points: 17

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RJD-1  
Location: Map # 1N3-35C Tax Lot # 500  
Drainage Basin: Council Creek

## Riparian Width Determination

Date: 4/02/02 Investigators: DR  
Dominant Tree Species: Cottonwood (*Populus trichocarpa*)  
Potential Tree Height: 120'  
Width of Riparian Area: 120'  
On-site vegetation: X Reference Site:

## Comments:

This riparian reach is divided into two distinct sections by the Portland/Western Railroad Line. The riparian area south of the railroad on the east side of the channel has been impacted by agricultural practices, and to some extent by residential development. The trees that have not been removed are located near the railroad tracks. The majority of the riparian area is covered in a variety of vegetative material including Himalayan blackberries, Reed Canary Grass, and field crops.



# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RJD-1  
Location: Map # 1N3-35C Tax Lot # 500  
Drainage Basin: Council Creek

## Riparian Characterization Form

Date: 4/02/02 Investigators: DR  
On-site: X Off Site: Reach Length: @ 2000'

## Water Resource Information

Stream/River: Yes Width: 3' - 10'  
Lake/Pond: Yes Width: @ 50'  
Wetland: Yes Width: @200'

LWI Wetland Code: JD-1 Water Present Year-Round: Yes

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA mapped 100 year floodplain: Yes

Mapped soil series: Cove Silty Clay Loam, Quatama Loam, Xerochrepts & Haploxerolls

Adjacent Land Uses: Residential, Agriculture, State Highway and Railroad line.

## Woody Vegetation

Cottonwood  
Oregon Ash  
Himalayan Blackberry

## Herbaceous Vegetation

Reed Canary Grass  
Cat-tails

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RJD-1  
Location: Map # 1N3-35C Tax Lot # 500

Hydrologic Basin: Council Creek

## Riparian Function Assessment Answer Sheet Results

WATER QUALITY Function Rating:

Question 1:	1	High
Question 2:	2	<u>Medium X</u>
Question 3:	2	Low
Question 4:	3	
<u>Question 5:</u>	<u>1</u>	
Total Points:	9	

FLOOD MANAGEMENT Function Rating:

Question 6:	3	High
Question 7:	3	<u>Medium X</u>
<u>Question 8:</u>	<u>1</u>	Low
Total Points:	7	

THERMAL REGULATION Function Rating:

Question 9:	1	High
Question 10:	2	Medium
<u>Question 11:</u>	<u>1</u>	<u>Low X</u>
Total Points:	4	

WILDLIFE HABITAT Function Rating:

Question 12:	2	High
Question 13:	2	<u>Medium X</u>
Question 14:	1	Low
Question 15:	1	
Question 16:	3	
Question 17:	3	
Question 18:	3	
<u>Question 19:</u>	<u>3</u>	
Total Points:	18	

## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RJD-2  
Location: Map # 1S3-02B Tax Lot # 700  
Drainage Basin: Tualatin River

### Riparian Width Determination

Date: 4/26/02 Investigators: DR  
Dominant Tree Species: Scouler's Willow (*Salix scouleriana*)  
Potential Tree Height: 30'  
Width of Riparian Area: 30'  
On-site vegetation:  Reference Site:

### Comments:

This riparian reach lies between the Tualatin Valley Hwy. and the Union Pacific Railroad Line, abutting the Cornelius Mini-Storage development. The riparian area has been impacted and filled by the construction of the Cornelius Mini-Storage. The majority of the riparian area is covered in a variety of vegetative material including Himalayan blackberries and Reed Canary Grass. As part of the landscaping for the Mini-Storage native plant materials were required to be planted in the riparian and wetland area in the Fall of 2001.



## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RJD-2  
Location: Map # 1S3-02B Tax Lot # 700  
Drainage Basin: Tualatin River

### Riparian Characterization Form

Date: 4/26/02 Investigators: DR  
On-site: X Off Site: Reach Length: @ 300'

### Water Resource Information

Stream/River: Yes Width: 2-3'  
Lake/Pond: Width:  
Wetland: Yes Width: @ 50'

LWI Wetland Code: JD-2 Water Present Year-Round: Yes

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA mapped 100 year floodplain: Yes

Mapped soil series: Labish Mucky Clay, Quatama Loam,

Adjacent Land Uses: Commercial, Agriculture, State Highway and Railroad line.

### Woody Vegetation

Scoulers Willow  
Red Twig Dogwood  
Himalayan Blackberry

### Herbaceous Vegetation

Reed Canary Grass  
Cat-tails

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RJD-2  
Location: Map # 1S3-02B Tax Lot # 700

Hydrologic Basin: Tualatin River

## Riparian Function Assessment Answer Sheet Results

WATER QUALITY Function Rating:

Question 1:	3	High
Question 2:	2	<u>Medium X</u>
Question 3:	2	Low
Question 4:	1	
<u>Question 5:</u>	<u>2</u>	
Total Points:	10	

FLOOD MANAGEMENT Function Rating:

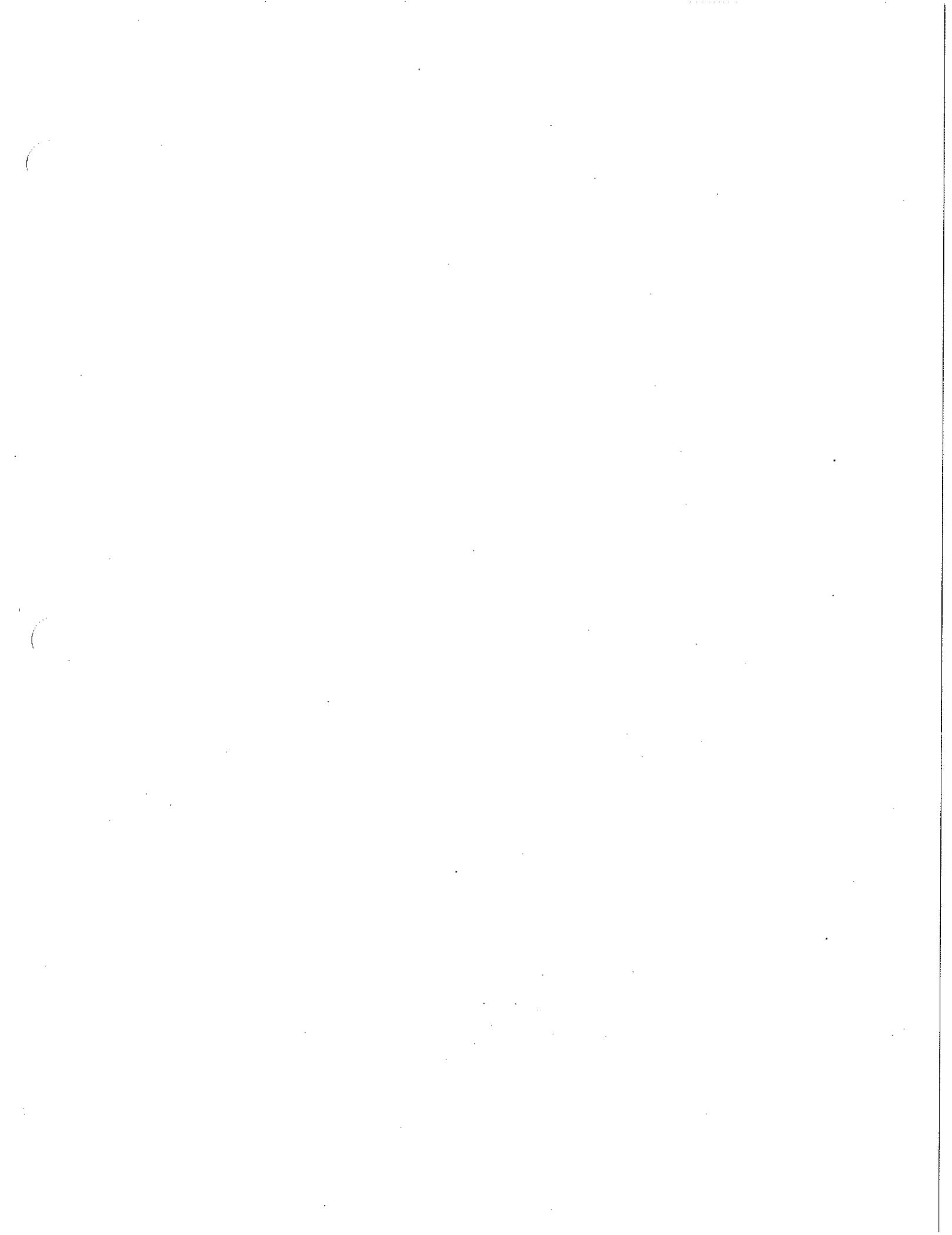
Question 6:	3	High
Question 7:	1	<u>Medium X</u>
<u>Question 8:</u>	<u>1</u>	Low
Total Points:	5	

THERMAL REGULATION Function Rating:

Question 9:	1	High
Question 10:	2	Medium
<u>Question 11:</u>	<u>1</u>	<u>Low X</u>
Total Points:	4	

WILDLIFE HABITAT Function Rating:

Question 12:	2	High
Question 13:	2	Medium
Question 14:	1	<u>Low X</u>
Question 15:	1	
Question 16:	1	
Question 17:	3	
Question 18:	1	
<u>Question 19:</u>	<u>1</u>	
Total Points:	12	



# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RCC-1A  
Location: Map # 1N3-34D Tax Lot #'s 105, 107  
Drainage Basin: Council Creek

## Riparian Width Determination

Date: 3/29/02 Investigators: DR  
Dominant Tree Species: Douglas Fir (*Pseudotsuga menziesii*)  
Potential Tree Height: 120'  
Width of Riparian Area: 120'  
On-site vegetation:  Reference Site:

### Comments:

Council Creek acts as the northern boundary for the City. This section of Council Creek is divided by three major City Collector streets, which provides points of division for the riparian corridor sections. Section RCC-1A lies east of NW Hobbs Road.



# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RCC-1A  
Location: Map # 1N3-34D Tax Lot #'s 105, 107

Drainage Basin: Council Creek

## Riparian Characterization Form

Date: 3/01/02 Investigators: DR

On-site: X Off Site: Reach Length: @ 1250'

## Water Resource Information

Stream/River: Yes Width: 10-20'  
Lake/Pond: Width:  
Wetland: Yes Width: @ 75'

LWI Wetland Code: CC-1 Water Present Year-Round: Yes

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: Yes

Within FEMA mapped 100 year floodplain: Yes

Mapped soil series: Cove Silty Clay Loam, Xerochrepts & Haploxerolls

Adjacent Land Uses: Residential, Agriculture, Public Parks

## Woody Vegetation

Douglas Fir  
Western Red Cedar  
Big Leaf Maple  
Red Twig Dogwood

## Herbaceous Vegetation

Creeping Buttercup  
Horsetail  
Reed Canary Grass  
Himalayan Blackberry

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RCC-1A  
Location: Map # 1N3-34D Tax Lot #'s 105, 107  
Hydrologic Basin: Council Creek

## Riparian Function Assessment Answer Sheet Results

### WATER QUALITY

Function Rating:

Question 1:	1	High
Question 2:	3	<u>Medium X</u>
Question 3:	3	Low
Question 4:	3	
<u>Question 5:</u>	<u>1</u>	
Total Points:	11	

### FLOOD MANAGEMENT

Function Rating:

Question 6:	3	High
Question 7:	3	<u>Medium X</u>
<u>Question 8:</u>	<u>1</u>	Low
Total Points:	7	

### THERMAL REGULATION

Function Rating:

Question 9:	3	<u>High X</u>
Question 10:	3	Medium
<u>Question 11:</u>	<u>2</u>	Low
Total Points:	8	

### WILDLIFE HABITAT

Function Rating:

Question 12:	3	<u>High X</u>
Question 13:	3	Medium
Question 14:	2	Low
Question 15:	1	
Question 16:	3	
Question 17:	3	
Question 18:	3	
<u>Question 19:</u>	<u>3</u>	
Total Points:	21	

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RCC-1B  
Location: Map # 1N3-34DB Tax Lot # 100  
Map # 1N3-34DA Tax Lot #'s 900, 901  
Map # 1N3-34CA Tax Lot #'s 201, 17300

Drainage Basin: Council Creek

## Riparian Width Determination

Date: 4/26/02 Investigators: DR  
Dominant Tree Species: Western Red Cedar (*Thuja plicata*)  
Potential Tree Height: 120'  
Width of Riparian Area: 120'  
On-site vegetation: X Reference Site:

## Comments:

Council Creek acts as the northern boundary for the City. This section of Council Creek is divided by three major City Collector streets, which provides points of division for the riparian corridor sections. Section RCC-1B lies between N. Susbauer Road and NW Hobbs Road.



# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RCC-1B  
Location: Map # 1N3-34DB Tax Lot # 100  
Map # 1N3-34DA Tax Lot #'s 900, 901  
Map # 1N3-34CA Tax Lot #'s 201, 17300

Drainage Basin: Council Creek

## Riparian Characterization Form

Date: 4/26/02 Investigators: DR

On-site: X Off Site: Reach Length: @ 3500'

## Water Resource Information

Stream/River: Yes Width: 10-20'  
Lake/Pond: Yes Width: @20'  
Wetland: Yes Width: @75'

LWI Wetland Code: CC-1 Water Present Year-Round: Yes

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: Yes

Within FEMA mapped 100 year floodplain: Yes

Mapped soil series: Cove Silty Clay Loam, Xerochrepts & Haploxerolls

Adjacent Land Uses: Residential, Roads, Public Parks

## Woody Vegetation

Douglas Fir  
Western Red Cedar  
Big Leaf Maple  
Red Twig Dogwood  
Red Alder

## Herbaceous Vegetation

Plaintain  
Horsetail  
Reed Canary Grass  
Himalayan Blackberry

## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RCC-1B  
Location: Map # 1N3-34DB Tax Lot # 100  
Map # 1N3-34DA Tax Lot #'s 900, 901  
Map # 1N3-34CA Tax Lot #'s 201, 17300

Hydrologic Basin: Council Creek

### Riparian Function Assessment Answer Sheet Results

WATER QUALITY                      Function Rating:

Question 1: 1                      High  
Question 2: 3                      Medium X  
Question 3: 3                      Low  
Question 4: 3  
Question 5: 1  
Total Points: 11

FLOOD MANAGEMENT              Function Rating:

Question 6: 3                      High  
Question 7: 3                      Medium X  
Question 8: 1                      Low  
Total Points: 7

THERMAL REGULATION              Function Rating:

Question 9: 3                      High X  
Question 10: 3                      Medium  
Question 11: 2                      Low  
Total Points: 8

WILDLIFE HABITAT                  Function Rating:

Question 12: 3                      High X  
Question 13: 3                      Medium  
Question 14: 2                      Low  
Question 15: 3  
Question 16: 3  
Question 17: 3  
Question 18: 3  
Question 19: 3  
Total Points: 23

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RCC-1C  
Location: Map # 1N3-34CB Tax Lot #'s 100, 200, 600, 400, 401  
Map # 1N3-33DA Tax Lot #'s 301, 302, 403  
Drainage Basin: Council Creek

## Riparian Width Determination

Date: 4/26/02 Investigators: DR  
Dominant Tree Species: Big Leaf Maple (*Acer macrophyllum*)  
Potential Tree Height: 90'  
Width of Riparian Area: 90'  
On-site vegetation:  Reference Site:

## Comments:

Council Creek acts as the northern boundary for the City. This section of Council Creek is divided by three major City Collector streets, which provides points of division for the riparian corridor sections. Section RCC-1B lies between N. Susbauer Road and N. 10<sup>th</sup> Avenue.



# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RCC-1C  
Location: Map # 1N3-34CB Tax Lot #'s 100, 200, 600, 400, 401  
Map # 1N3-33DA Tax Lot #'s 301, 302, 403  
Drainage Basin: Council Creek

## Riparian Characterization Form

Date: 4/26/02 Investigators: DR  
On-site: X Off Site: Reach Length: @ 3750'

## Water Resource Information

Stream/River: Yes Width: 10-30'  
Lake/Pond: Width:  
Wetland: Yes Width: @ 75'

LWI Wetland Code: CC-1 Water Present Year-Round: Yes

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: Yes

Within FEMA mapped 100 year floodplain: Yes

Mapped soil series: Cove Silty Clay Loam, Xerochrepts & Haploxerolls, Woodburn Silt Loam, Quatama Loam

Adjacent Land Uses: Residential, Industrial, Public Roads

## Woody Vegetation

Scouler Willow  
Oregon Ash  
Big Leaf Maple  
Red Twig Dogwood

## Herbaceous Vegetation

Creeping Buttercup  
Horsetail  
Reed Canary Grass  
Himalayan Blackberry

## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RCC-1C  
Location: Map # 1N3-34CB Tax Lot #'s 100, 200, 600, 400, 401  
Map # 1N3-33DA Tax Lot #'s 301, 302, 403

Hydrologic Basin: Council Creek

### Riparian Function Assessment Answer Sheet Results

WATER QUALITY Function Rating:

Question 1: 2 High X  
Question 2: 3 Medium  
Question 3: 3 Low  
Question 4: 3  
Question 5: 2  
Total Points: 13

FLOOD MANAGEMENT Function Rating:

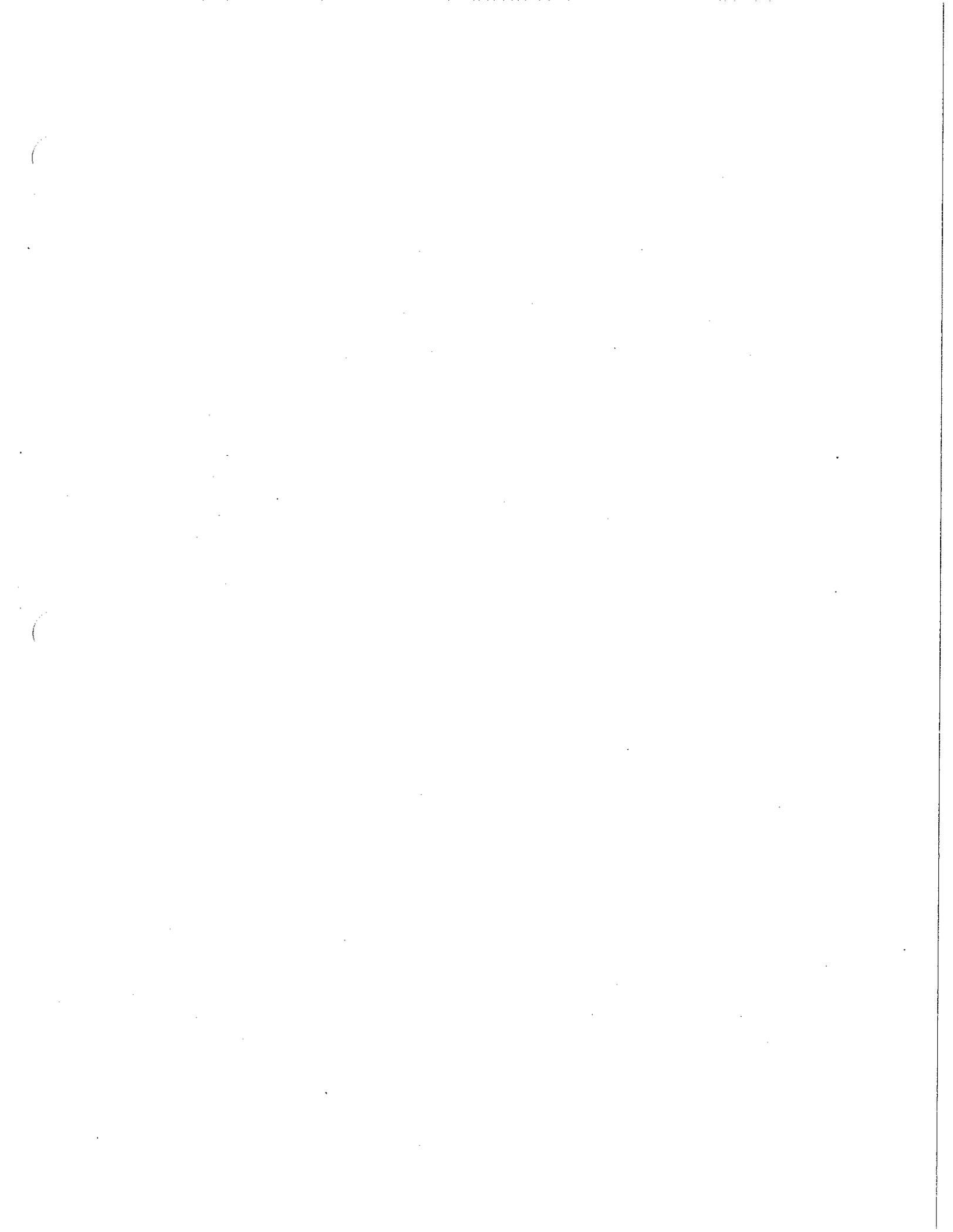
Question 6: 3 High  
Question 7: 3 Medium X  
Question 8: 1 Low  
Total Points: 7

THERMAL REGULATION Function Rating:

Question 9: 3 High X  
Question 10: 3 Medium  
Question 11: 2 Low  
Total Points: 8

WILDLIFE HABITAT Function Rating:

Question 12: 3 High X  
Question 13: 3 Medium  
Question 14: 2 Low  
Question 15: 3  
Question 16: 3  
Question 17: 3  
Question 18: 3  
Question 19: 2  
Total Points: 22



# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

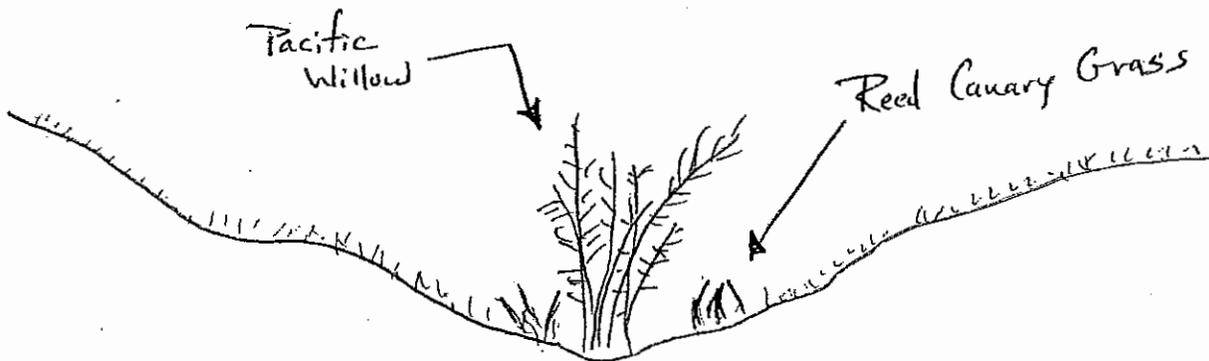
Riparian Code: LCCDU-1  
Location: Map # 1S3-34CA Tax Lot #'s 17300 (Tract G), 201  
Drainage Basin: Council Creek

## Riparian Width Determination

Date: 4/26/02 Investigators: DR  
Dominant Tree Species: Pacific Willow  
Potential Tree Height: 35'  
Width of Riparian Area: 35'  
On-site vegetation: X Reference Site:

### Comments:

Council Creek acts as the northern boundary for the City. This is a small drainage area that feeds into Council Creek (Riparian Section – RCC-1B). This site has been modified as part of the development of the Council Creek Subdivision. Section RCC-1B lies between N. Susbauer Road and N. 10<sup>th</sup> Avenue.



## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LCCDU-1  
Location: Map # 1S3-34CA Tax Lot #'s 17300 (Tract G), 201  
Drainage Basin: Council Creek

### Riparian Characterization Form

Date: 4/26/02 Investigators: DR  
On-site: X Off Site: Reach Length: @ 300'

### Water Resource Information

Stream/River: Width:  
Lake/Pond: Width:  
Wetland: Yes Width: @ 20'

LWI Wetland Code: CC-1 Water Present Year-Round: No

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA mapped 100 year floodplain: No

Mapped soil series: Verboort Silty Clay Loam

Adjacent Land Uses: Residential, Roads, Open Space

### Woody Vegetation

Pacific Willow

### Herbaceous Vegetation

Reed Canary Grass

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LCCDU-1  
Location: Map # 1S3-34CA Tax Lot #'s 17300 (Tract G), 201

Hydrologic Basin: Council Creek

## Riparian Function Assessment Answer Sheet Results

WATER QUALITY Function Rating:

Question 1: 2	High
Question 2: 2	<u>Medium X</u>
Question 3: 2	Low
Question 4: 3	
<u>Question 5: 2</u>	
Total Points: 11	

FLOOD MANAGEMENT Function Rating:

Question 6: 1	High
Question 7: 1	Medium
<u>Question 8: 1</u>	<u>Low X</u>
Total Points: 3	

THERMAL REGULATION Function Rating:

Question 9: 1	High
Question 10: 2	Medium
<u>Question 11: 1</u>	<u>Low X</u>
Total Points: 4	

WILDLIFE HABITAT Function Rating:

Question 12: 2	High
Question 13: 2	<u>Medium X</u>
Question 14: 1	Low
Question 15: 1	
Question 16: 3	
Question 17: 1	
Question 18: 1	
<u>Question 19: 3</u>	
Total Points: 14	

## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LCCDU-1  
Location: Map # 1S3-34CA Tax Lot #'s 17300 (Tract G), 201  
Drainage Basin: Council Creek

### Riparian Width Determination

Date: 4/26/02 Investigators: DR  
Dominant Tree Species: Pacific Willow  
Potential Tree Height: 35'  
Width of Riparian Area: 35'  
On-site vegetation: X Reference Site:

### Comments:

Council Creek acts as the northern boundary for the City. This is a small drainage area that feeds into Council Creek (Riparian Section – RCC-1B). This site has been modified as part of the development of the Council Creek Subdivision. Section RCC-1B lies between N. Susbauer Road and N. 10<sup>th</sup> Avenue.

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

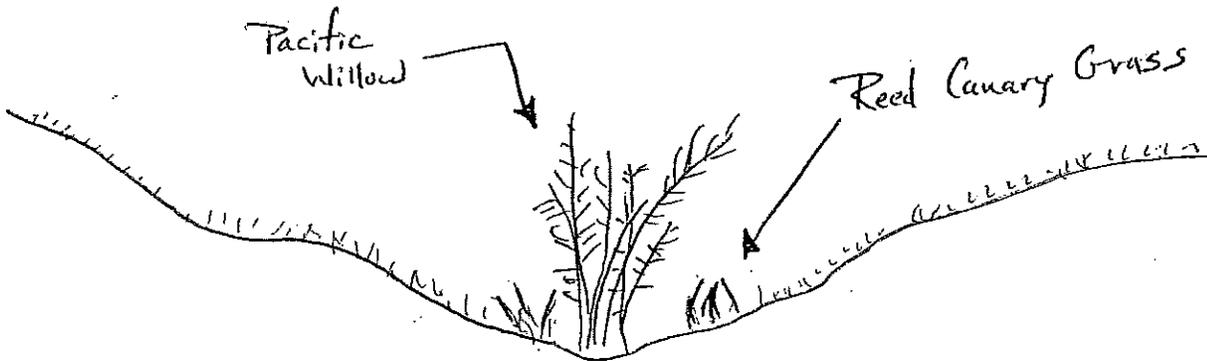
Riparian Code: RCCDU-1  
Location: Map # 1S3-34CA Tax Lot #'s 17300 (Tract G), 201  
Drainage Basin: Council Creek

## Riparian Width Determination

Date: 4/26/02                      Investigators: DR  
Dominant Tree Species: Pacific Willow  
Potential Tree Height: 35'  
Width of Riparian Area: 35'  
On-site vegetation: X                      Reference Site:

### Comments:

Council Creek acts as the northern boundary for the City. This is a small drainage area that feeds into Council Creek (Riparian Section – RCC-1B). This site has been modified as part of the development of the Council Creek Subdivision. Section RCC-1B lies between N. Susbauer Road and N. 10<sup>th</sup> Avenue.



# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RCCDU-1  
Location: Map # 1S3-34CA Tax Lot #'s 17300 (Tract G), 201  
Drainage Basin: Council Creek

## Riparian Characterization Form

Date: 4/26/02 Investigators: DR  
On-site: X Off Site: Reach Length: @ 300'

## Water Resource Information

Stream/River: Width:  
Lake/Pond: Width:  
Wetland: Yes Width: @ 20'

LWI Wetland Code: CC-1 Water Present Year-Round: No

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA mapped 100 year floodplain: No

Mapped soil series: Verboort Silty Clay Loam

Adjacent Land Uses: Residential, Roads, Open Space

## Woody Vegetation

Pacific Willow

## Herbaceous Vegetation

Reed Canary Grass

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RCCDU-1  
Location: Map # 1S3-34CA Tax Lot #'s 17300 (Tract G), 201  
Hydrologic Basin: Council Creek

## Riparian Function Assessment Answer Sheet Results

### WATER QUALITY Function Rating:

Question 1:	2	High
Question 2:	2	<u>Medium X</u>
Question 3:	2	Low
Question 4:	3	
<u>Question 5:</u>	<u>2</u>	
Total Points:	11	

### FLOOD MANAGEMENT Function Rating:

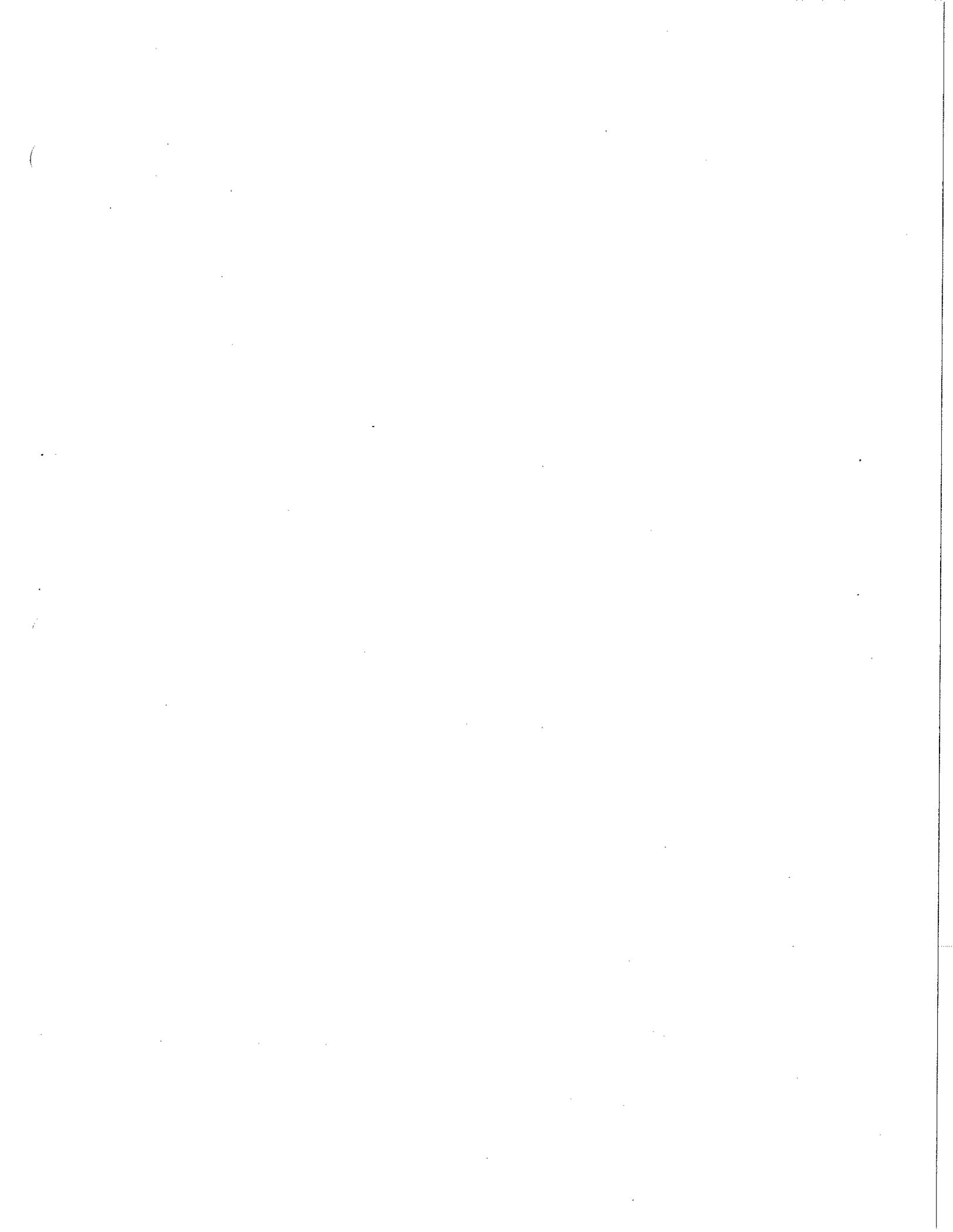
Question 6:	1	High
Question 7:	1	Medium
<u>Question 8:</u>	<u>1</u>	<u>Low X</u>
Total Points:	3	

### THERMAL REGULATION Function Rating:

Question 9:	1	High
Question 10:	2	Medium
<u>Question 11:</u>	<u>1</u>	<u>Low X</u>
Total Points:	4	

### WILDLIFE HABITAT Function Rating:

Question 12:	2	High
Question 13:	2	<u>Medium X</u>
Question 14:	1	Low
Question 15:	1	
Question 16:	3	
Question 17:	1	
Question 18:	1	
<u>Question 19:</u>	<u>3</u>	
Total Points:	14	



## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RTD-1  
Location: Map # 1S3-04CB Tax Lot # 205 (Tract A)  
Drainage Basin: Tualatin River

### Riparian Width Determination

Date: 3/01/02 Investigators: DR  
Dominant Tree Species: Pacific Willow (*Salix lasiandra*)  
Potential Tree Height: 35'  
Width of Riparian Area: 35'  
On-site vegetation: X Reference Site:

### Comments:

A small stream bisects this tract of land. The riparian area on the west side of this tract is narrow and abuts a residential subdivision. There is some small, woody vegetation (trees and shrubs) along the streambank.



## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RTD-1  
Location: Map # 1S3-04CB Tax Lot # 205 (Tract A)  
Drainage Basin: Tualatin River

### Riparian Characterization Form

Date: 3/01/02 Investigators: DR  
On-site: X Off Site: Reach Length: @ 730'

### Water Resource Information

Stream/River: Yes Width: 3-5'  
Lake/Pond: Width:  
Wetland: Yes Width: @ 100'

LWI Wetland Code: TD-1 Water Present Year-Round: Yes

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA mapped 100 year floodplain: Yes

Mapped soil series: Verboort Silty Clay Loam, Woodburn Silt Loam, Amity Silt Loam

Adjacent Land Uses: Residential, School/Park, Public Roads

### **Woody Vegetation**

Pacific Willow  
Red Twig Dogwood  
Douglas Hawthorn  
Himalayan Blackberry

### **Herbaceous Vegetation**

Reed Canary Grass  
Tall Fescue  
Meadow Foxtail  
Soft Rush

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RTD-1  
Location: Map # 1S3-04CB Tax Lot # 205 (Tract A)

Hydrologic Basin: Tualatin River

## Riparian Function Assessment Answer Sheet Results

WATER QUALITY                      Function Rating:

Question 1:	1	High
Question 2:	2	<u>Medium X</u>
Question 3:	3	Low
Question 4:	3	
Question 5:	2	
Total Points:	11	

FLOOD MANAGEMENT                      Function Rating:

Question 6:	1	High
Question 7:	1	Medium
Question 8:	1	<u>Low X</u>
Total Points:	3	

THERMAL REGULATION                      Function Rating:

Question 9:	1	High
Question 10:	2	<u>Medium X</u>
Question 11:	2	Low
Total Points:	5	

WILDLIFE HABITAT                      Function Rating:

Question 12:	3	High
Question 13:	2	<u>Medium X</u>
Question 14:	2	Low
Question 15:	1	
Question 16:	1	
Question 17:	3	
Question 18:	1	
Question 19:	2	
Total Points:	15	

## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LTD-1  
Location: Map # 1S3-04CB Tax Lot # 205 (Tract A)  
Drainage Basin: Tualatin River

### Riparian Width Determination

Date: 3/01/02 Investigators: DR

Dominant Tree Species: Pacific Willow (*Salix lasiandra*)

Potential Tree Height: 35'

Width of Riparian Area: 35'

On-site vegetation:  Reference Site:

### Comments:

A small stream bisects this tract of land. The east side of the property appears to be mowed throughout the year. There is some small, woody vegetation (trees and shrubs) along the streambank.



## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LTD-1  
Location: Map # 1S3-04CB Tax Lot # 205 (Tract A)  
Drainage Basin: Tualatin River

### Riparian Characterization Form

Date: 3/01/02 Investigators: DR

On-site: X Off Site: Reach Length: @ 730'

### Water Resource Information

Stream/River: Yes Width: 3-5'  
Lake/Pond: Width:  
Wetland: Yes Width: @ 100'

LWI Wetland Code: TD-1 Water Present Year-Round: Yes

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA mapped 100 year floodplain: Yes

Mapped soil series: Verboort Silty Clay Loam, Woodburn Silt Loam, Amity Silt Loam

Adjacent Land Uses: Residential, School/Park, Public Roads

### Woody Vegetation

Pacific Willow  
Red Twig Dogwood  
Douglas Hawthorn

### Herbaceous Vegetation

Reed Canary Grass  
Tall Fescue

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LTD-1  
Location: Map # 1S3-04CB Tax Lot # 205 (Tract A)

Hydrologic Basin: Tualatin River

## Riparian Function Assessment Answer Sheet Results

WATER QUALITY Function Rating:

Question 1: 3 High X  
Question 2: 2 Medium  
Question 3: 3 Low  
Question 4: 3  
Question 5: 2  
Total Points: 13

FLOOD MANAGEMENT Function Rating:

Question 6: 3 High  
Question 7: 1 Medium X  
Question 8: 1 Low  
Total Points: 5

THERMAL REGULATION Function Rating:

Question 9: 1 High  
Question 10: 2 Medium X  
Question 11: 2 Low  
Total Points: 5

WILDLIFE HABITAT Function Rating:

Question 12: 3 High X  
Question 13: 3 Medium  
Question 14: 2 Low  
Question 15: 1  
Question 16: 3  
Question 17: 3  
Question 18: 1  
Question 19: 3  
Total Points: 19

## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RTD-2  
Location: Map # 1S3-04CB Tax Lot # 206 (Tract B)  
Drainage Basin: Tualatin River

### Riparian Width Determination

Date: 3/01/02 Investigators: DR  
Dominant Tree Species: Pacific Willow (*Salix lasiandra*)  
Potential Tree Height: 35'  
Width of Riparian Area: 35'  
On-site vegetation: X Reference Site:

### Comments:

A perennial stream feeds an area where ponding occurs on this tract of land. There is some small, woody vegetation (trees and shrubs) located around the area of ponding.



## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RTD-2  
Location: Map # 1S3-04CB Tax Lot # 206 (Tract B)  
Drainage Basin: Tualatin River

### Riparian Characterization Form

Date: 3/01/02 Investigators: DR

On-site: X Off Site: Reach Length: @ 393'

### Water Resource Information

Stream/River: Yes Width: 3-5'  
Lake/Pond: Yes Width: 50-60'  
Wetland: Yes Width: @ 300'

LWI Wetland Code: TD-2 Water Present Year-Round: Yes

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA mapped 100 year floodplain: Yes

Mapped soil series: Verboort Silty Clay Loam, Woodburn Silt Loam

Adjacent Land Uses: Residential, Agriculture, Public Roads

### Woody Vegetation

Pacific Willow  
Douglas Hawthorn

### Herbaceous Vegetation

Reed Canary Grass  
Tall Fescue  
Soft Rush

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RTD-2  
Location: Map # 1S3-04CB Tax Lot # 206 (Tract B)

Hydrologic Basin: Tualatin River

## Riparian Function Assessment Answer Sheet Results

WATER QUALITY Function Rating:

Question 1:	3	<u>High X</u>
Question 2:	2	Medium
Question 3:	2	Low
Question 4:	3	
<u>Question 5:</u>	<u>2</u>	
Total Points:	12	

FLOOD MANAGEMENT Function Rating:

Question 6:	3	High
Question 7:	1	<u>Medium X</u>
<u>Question 8:</u>	<u>1</u>	Low
Total Points:	5	

THERMAL REGULATION Function Rating:

Question 9:	1	High
Question 10:	2	Medium
<u>Question 11:</u>	<u>1</u>	<u>Low X</u>
Total Points:	4	

WILDLIFE HABITAT Function Rating:

Question 12:	2	High
Question 13:	2	<u>Medium X</u>
Question 14:	1	Low
Question 15:	1	
Question 16:	3	
Question 17:	3	
Question 18:	3	
<u>Question 19:</u>	<u>3</u>	
Total Points:	18	

## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LTD-2  
Location: Map # 1S3-04CB Tax Lot # 206 (Tract B)  
Drainage Basin: Tualatin River

### Riparian Width Determination

Date: 3/01/02 Investigators: DR  
Dominant Tree Species: Pacific Willow (*Salix lasiandra*)  
Potential Tree Height: 35'  
Width of Riparian Area: 35'  
On-site vegetation:  Reference Site:

### Comments:

A perennial stream feeds an area where ponding occurs on this tract of land. There is some small, woody vegetation (trees and shrubs) located around the area of ponding.



## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LTD-2  
Location: Map # 1S3-04CB Tax Lot # 206 (Tract B)  
Drainage Basin: Tualatin River

### Riparian Characterization Form

Date: 3/01/02 Investigators: DR  
On-site: X Off Site: Reach Length: @ 393'

### **Water Resource Information**

Stream/River: Yes Width: 3-5'  
Lake/Pond: Yes Width: 50-60'  
Wetland: Yes Width: @ 300'

LWI Wetland Code: TD-2 Water Present Year-Round: Yes

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA mapped 100 year floodplain: Yes

Mapped soil series: Verboort Silty Clay Loam, Woodburn Silt Loam

Adjacent Land Uses: Residential, Agriculture, Public Roads

### **Woody Vegetation**

Pacific Willow  
Douglas Hawthorn

### **Herbaceous Vegetation**

Reed Canary Grass  
Tall Fescue  
Soft Rush

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LTD-2

Location: Map # 1S3-04CB Tax Lot # 206 (Tract B)

Hydrologic Basin: Tualatin River

## Riparian Function Assessment Answer Sheet Results

### WATER QUALITY

Function Rating:

Question 1: 3

High X

Question 2: 2

Medium

Question 3: 2

Low

Question 4: 3

Question 5: 2

Total Points: 12

### FLOOD MANAGEMENT

Function Rating:

Question 6: 3

High

Question 7: 1

Medium X

Question 8: 1

Low

Total Points: 5

### THERMAL REGULATION

Function Rating:

Question 9: 1

High

Question 10: 2

Medium

Question 11: 1

Low X

Total Points: 4

### WILDLIFE HABITAT

Function Rating:

Question 12: 2

High

Question 13: 2

Medium X

Question 14: 1

Low

Question 15: 1

Question 16: 3

Question 17: 3

Question 18: 3

Question 19: 3

Total Points: 18

## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LTD-3  
Location: Map # 1N3-04BB Tax Lot #'s 100, 200, 300  
Drainage Basin: Tualatin River

### Riparian Width Determination

Date: 5/08/02 Investigators: DR  
Dominant Tree Species: Scouler Willow (*Salix scouleriana*)  
Potential Tree Height: 30'  
Width of Riparian Area: 30'  
On-site vegetation: X Reference Site:

### Comments:

The drainage originates in the City of Forest Grove and is immediately altered by road and railroad track construction as it enters the City of Cornelius. This isolated wetland and riparian area is less than five (5) acres in size and does not appear to connect to another water body or wetland.



## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LTD-3  
Location: Map # 1N3-04BB Tax Lot #'s 100, 200, 300  
Drainage Basin: Tualatin River

### Riparian Characterization Form

Date: 5/08/02 Investigators: DR  
On-site: X Off Site: \_\_\_\_\_ Reach Length: @ 393'

### Water Resource Information

Stream/River: Yes Width: 3-5'  
Lake/Pond: \_\_\_\_\_ Width: \_\_\_\_\_  
Wetland: Yes Width: @ 20'

LWI Wetland Code: TD-3 Water Present Year-Round: Yes

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA mapped 100 year floodplain: No

Mapped soil series: Verboort Silty Clay Loam, Woodburn Silt Loam

Adjacent Land Uses: Undeveloped, Railroad Tracks, Public Roads

### Woody Vegetation

Pacific Willow  
Sitka Willow

### Herbaceous Vegetation

Himalayan Blackberry  
Rush (Juncus effuses)  
Sedge (Carex densa)

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LTD-3  
Location: Map # 1N3-04BB Tax Lot #'s 100, 200, 300

Hydrologic Basin: Tualatin River

## Riparian Function Assessment Answer Sheet Results

WATER QUALITY Function Rating:

Question 1: 2	High
Question 2: 2	<u>Medium X</u>
Question 3: 2	Low
Question 4: 3	
<u>Question 5: 2</u>	
Total Points: 11	

FLOOD MANAGEMENT Function Rating:

Question 6: 1	High
Question 7: 1	Medium
<u>Question 8: 1</u>	<u>Low X</u>
Total Points: 3	

THERMAL REGULATION Function Rating:

Question 9: 3	High
Question 10: 2	<u>Medium X</u>
<u>Question 11: 1</u>	Low
Total Points: 6	

WILDLIFE HABITAT Function Rating:

Question 12: 2	High
Question 13: 2	<u>Medium X</u>
Question 14: 1	Low
Question 15: 1	
Question 16: 1	
Question 17: 3	
Question 18: 3	
<u>Question 19: 1</u>	
Total Points: 14	

## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RTD-3  
Location: Map # 1N3-04BB Tax Lot #'s 100, 200, 300  
Drainage Basin: Tualatin River

### Riparian Width Determination

Date: 5/08/02 Investigators: DR  
Dominant Tree Species: Big Leaf Maple (*Acer macrophyllum*)  
Potential Tree Height: 90'  
Width of Riparian Area: 90'  
On-site vegetation: X Reference Site:

### Comments:

The drainage originates in the City of Forest Grove and is immediately altered by road and railroad track construction as it enters the City of Cornelius. This isolated wetland and riparian area is less than five (5) acres in size and does not appear to connect to another water body or wetland.



## URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RTD-3  
Location: Map # 1N3-04BB Tax Lot #'s 100, 200, 300  
Drainage Basin: Tualatin River

### Riparian Characterization Form

Date: 5/08/02 Investigators: DR  
On-site: X Off Site: Reach Length: @ 418'

### Water Resource Information

Stream/River: Yes Width: 3-5'  
Lake/Pond: Width:  
Wetland: Yes Width: @ 20'

LWI Wetland Code: TD-3 Water Present Year-Round: Yes

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA mapped 100 year floodplain: No

Mapped soil series: Verboort Silty Clay Loam, Woodburn Silt Loam

Adjacent Land Uses: Undeveloped, Railroad Tracks, Public Roads

### Woody Vegetation

Big Leaf Maple

### Herbaceous Vegetation

Himalayan Blackberry  
Rush (Juncus effuses)  
Sedge (Carex densa)

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RTD-3  
Location: Map # 1N3-04BB Tax Lot #'s 100, 200, 300

Hydrologic Basin: Tualatin River

## Riparian Function Assessment Answer Sheet Results

WATER QUALITY                      Function Rating:

Question 1:	2	High
Question 2:	2	<u>Medium X</u>
Question 3:	2	Low
Question 4:	3	
<u>Question 5:</u>	<u>2</u>	
Total Points:	11	

FLOOD MANAGEMENT                      Function Rating:

Question 6:	1	High
Question 7:	1	Medium
<u>Question 8:</u>	<u>1</u>	<u>Low X</u>
Total Points:	3	

THERMAL REGULATION                      Function Rating:

Question 9:	3	High
Question 10:	2	<u>Medium X</u>
<u>Question 11:</u>	<u>1</u>	Low
Total Points:	6	

WILDLIFE HABITAT                      Function Rating:

Question 12:	2	High
Question 13:	2	<u>Medium X</u>
Question 14:	1	Low
Question 15:	1	
Question 16:	1	
Question 17:	3	
Question 18:	3	
<u>Question 19:</u>	<u>1</u>	
Total Points:	14	

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

**Riparian Code:** LTR-1  
**Location:** Map # 1S3-04D Tax Lot #'s 1100, 1400, 1500 (Tract B)  
Map # 1S3-04DB Tax Lot #'s 1900, 2100  
Map # 1S3-04DA Tax lot #'s 900, 1200, 1300, 1400, 2200

**Drainage Basin:** Tualatin River

## Riparian Characterization Form

**Date:** 5/06/02 **Investigators:** DR

**On-site:** X **Off Site:**                      **Reach Length:** @ 1900'

### **Water Resource Information**

**Stream/River:** Yes **Width:** 2-5'  
**Lake/Pond:**                      **Width:**                       
**Wetland:** Yes **Width:** @ 300'

**LWI Wetland Code:** TR-2 **Water Present Year-Round:** Yes

**Are salmonids present in the adjacent water resource:** No

**Is the water resource listed for temperature on DEQ's 303(d) list:** No

**Within FEMA mapped 100 year floodplain:** Yes

**Mapped soil series:** Verboort Silty Clay Loam, Woodburn Silt Loam, Wapato Silty Clay Loam

**Adjacent Land Uses:** Residential, Industrial, Public Park

### **Woody Vegetation**

Pacific Willow  
Oregon Ash  
Red Twig Dogwood  
Big Leaf Maple

### **Herbaceous Vegetation**

Reed Canary Grass  
Himalayan Blackberry  
Douglas Spirea  
Poison Oak

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

**Riparian Code:** LTR-1  
**Location:** Map # 1S3-04D Tax Lot #'s 1100, 1400, 1500 (Tract B)  
Map # 1S3-04DB Tax Lot #'s 1900, 2100  
Map # 1S3-04DA Tax lot #'s 900, 1200, 1300, 1400, 2200

**Drainage Basin:** Tualatin River

## Riparian Width Determination

**Date:** 5/06/02 **Investigators:** DR

**Dominant Tree Species:** Big Leaf Maple (*Acer macrophyllum*)

**Potential Tree Height:** 90'

**Width of Riparian Area:** 90'

**On-site vegetation:** X **Reference Site:**

## **Comments:**

This riparian area abuts the Tualatin River and associated tributaries along the southern City boundary. This riparian area includes forested wetland and transitional zones.

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LTR-1

Location: Map # 1S3-04D Tax Lot #'s 1100, 1400, 1500 (Tract B)  
Map # 1S3-04DB Tax Lot #'s 1900, 2100  
Map # 1S3-04DA Tax lot #'s 900, 1200, 1300, 1400, 2200

Hydrologic Basin: Tualatin River

## Riparian Function Assessment Answer Sheet Results

### WATER QUALITY

Function Rating:

Question 1: 2 High X  
Question 2: 3 Medium  
Question 3: 3 Low  
Question 4: 3  
Question 5: 2  
Total Points: 13

### FLOOD MANAGEMENT

Function Rating:

Question 6: 3 High X  
Question 7: 3 Medium  
Question 8: 3 Low  
Total Points: 9

### THERMAL REGULATION

Function Rating:

Question 9: 3 High  
Question 10: 3 Medium X  
Question 11: 2 Low  
Total Points: 8

### WILDLIFE HABITAT

Function Rating:

Question 12: 3 High X  
Question 13: 3 Medium  
Question 14: 2 Low  
Question 15: 3  
Question 16: 3  
Question 17: 3  
Question 18: 3  
Question 19: 2  
Total Points: 22

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LTR-1  
Location: Map # 1S3-04D Tax Lot #'s 1100, 1400, 1500 (Tract B)  
Map # 1S3-04DB Tax Lot #'s 1900, 2100  
Map # 1S3-04DA Tax lot #'s 900, 1200, 1300, 1400, 2200

Drainage Basin: Tualatin River

## Riparian Width Determination

Date: 5/06/02

Investigators: DR

Dominant Tree Species: Big Leaf Maple (*Acer macrophyllum*)

Potential Tree Height: 90'

Width of Riparian Area: 90'

On-site vegetation: X

Reference Site:

Comments:

This riparian area abuts the Tualatin River and associated tributaries along the southern City boundary. This riparian area includes forested wetland and transitional zones.



# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LTR-2  
Location: Map # 1S3-04AD Tax Lot #'s 600, 800, 5500 (Tr. B), 3200(Tr. A)  
Map # 1S3-04DA Tax Lot # 2100 (Tr. B)

Drainage Basin: Tualatin River

## Riparian Characterization Form

Date: 3/01/02 Investigators: DR

On-site: X Off Site: Reach Length: @ 2000'

### Water Resource Information

Stream/River: Yes Width: 2-5'  
Lake/Pond: Width:  
Wetland: Yes Width: @ 300'

LWI Wetland Code: TR-2 Water Present Year-Round: Yes

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA mapped 100 year floodplain: Yes

Mapped soil series: Verboort Silty Clay Loam, Woodburn Silt Loam, Quatama Loam

Adjacent Land Uses: Residential, Agriculture

### Woody Vegetation

Pacific Willow  
Oregon Ash  
Oregon Oak  
Big Leaf Maple

### Herbaceous Vegetation

Reed Canary Grass  
Himalayan Blackberry  
Cattails

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: LTR-2

Location: Map # 1S3-04AD Tax Lot #'s 600, 800, 5500 (Tr. B), 3200(Tr. A)  
Map # 1S3-04DA Tax Lot # 2100 (Tr. B)

Hydrologic Basin: Tualatin River

## Riparian Function Assessment Answer Sheet Results

### WATER QUALITY

Function Rating:

Question 1:	2	<u>High X</u>
Question 2:	3	Medium
Question 3:	3	Low
Question 4:	3	
<u>Question 5:</u>	<u>2</u>	
Total Points:	13	

### FLOOD MANAGEMENT

Function Rating:

Question 6:	3	High
Question 7:	3	<u>Medium X</u>
<u>Question 8:</u>	<u>1</u>	Low
Total Points:	7	

### THERMAL REGULATION

Function Rating:

Question 9:	1	High
Question 10:	3	<u>Medium X</u>
<u>Question 11:</u>	<u>2</u>	Low
Total Points:	6	

### WILDLIFE HABITAT

Function Rating:

Question 12:	3	<u>High X</u>
Question 13:	3	Medium
Question 14:	2	Low
Question 15:	1	
Question 16:	3	
Question 17:	3	
Question 18:	3	
<u>Question 19:</u>	<u>3</u>	
Total Points:	21	

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RTR-2  
Location: Map # 1S3-04AD Tax Lot #'s 600, 800, 5500 (Tr. B), 3200(Tr. A)  
Map # 1S3-04DA Tax Lot # 2100 (Tr. B)

Drainage Basin: Tualatin River

## Riparian Width Determination

Date: 3/29/02 Investigators: DR

Dominant Tree Species: Big Leaf Maple (*Acer macrophyllum*)

Potential Tree Height: 90'

Width of Riparian Area: 90'

On-site vegetation: X Reference Site:

## Comments:

The perennial stream associated with this wetland is a tributary to the main stem of the Tualatin River, but appears to dry up before joining the Tualatin. The wetlands and riparian area associated with this stream passes through and abuts parcels in public ownership.



# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RTR-2  
Location: Map # 1S3-04AD Tax Lot #'s 600, 800, 5500 (Tr. B), 3200(Tr. A)  
Map # 1S3-04DA Tax Lot # 2100 (Tr. B)

Drainage Basin: Tualatin River

## Riparian Characterization Form

Date: 3/01/02 Investigators: DR

On-site: X Off Site: Reach Length: @ 2000'

## Water Resource Information

Stream/River: Yes Width: 2-5'  
Lake/Pond: Width:  
Wetland: Yes Width: @ 300'

LWI Wetland Code: TR-2 Water Present Year-Round: Yes

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA mapped 100 year floodplain: Yes

Mapped soil series: Verboort Silty Clay Loam, Woodburn Silt Loam, Quatama Loam

Adjacent Land Uses: Residential, Agriculture, Public Roads

## Woody Vegetation

Pacific Willow  
Oregon Ash  
Douglas Hawthorn  
Big Leaf Maple  
Alder

## Herbaceous Vegetation

Reed Canary Grass  
Himalayan Blackberry  
Wild Rose  
Douglas Spirea

# URBAN RIPARIAN AREA INVENTORY & ASSESSMENT

Riparian Code: RTR-2

Location: Map # 1S3-04AD Tax Lot #'s 600, 800, 5500 (Tr. B), 3200(Tr. A)  
Map # 1S3-04DA Tax Lot # 2100 (Tr. B)

Hydrologic Basin: Tualatin River

## Riparian Function Assessment Answer Sheet Results

### WATER QUALITY

Function Rating:

Question 1:	3	<u>High X</u>
Question 2:	2	Medium
Question 3:	2	Low
Question 4:	3	
<u>Question 5:</u>	<u>2</u>	
Total Points:	12	

### FLOOD MANAGEMENT

Function Rating:

Question 6:	3	High
Question 7:	3	<u>Medium X</u>
<u>Question 8:</u>	<u>1</u>	Low
Total Points:	7	

### THERMAL REGULATION

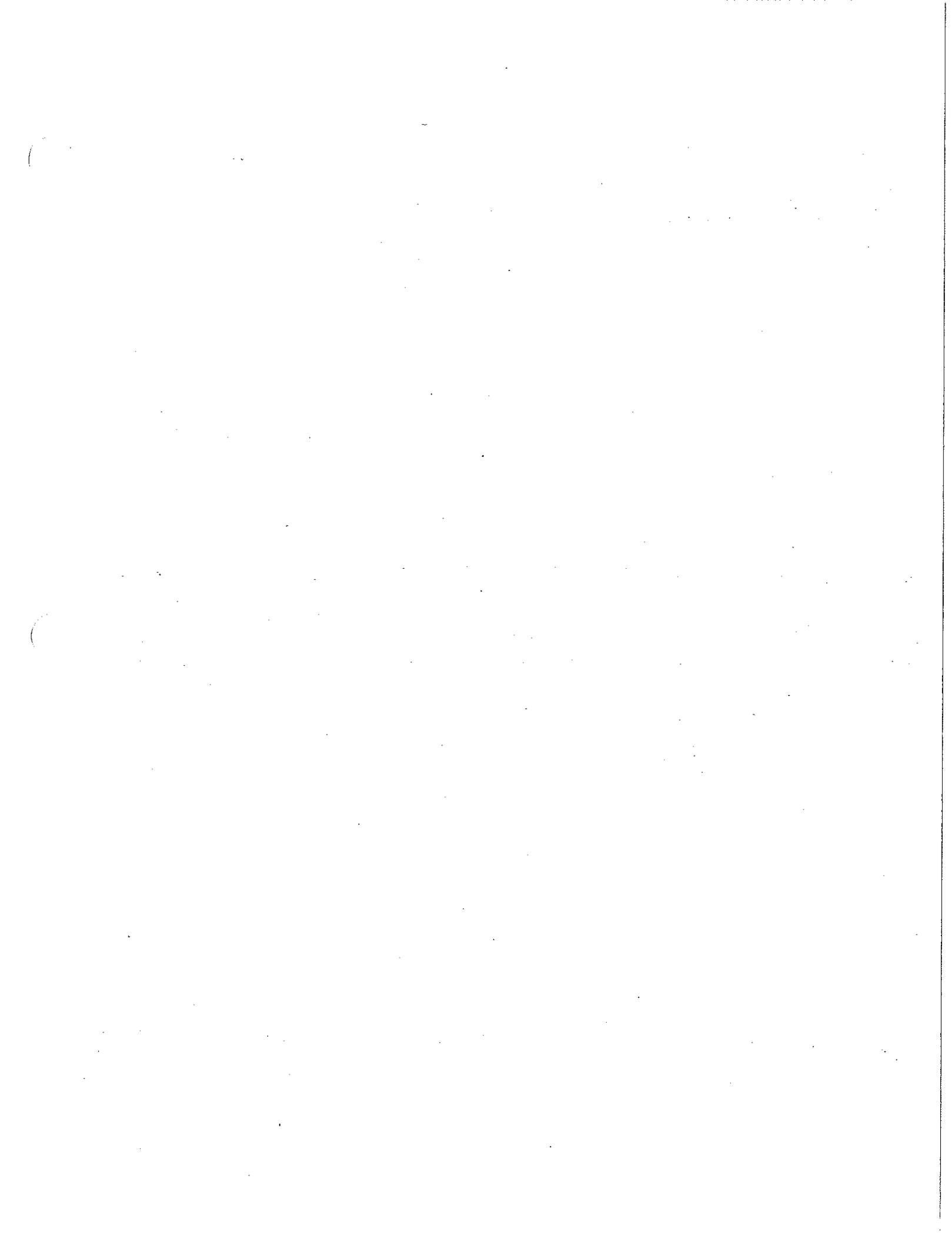
Function Rating:

Question 9:	3	<u>High X</u>
Question 10:	2	Medium
<u>Question 11:</u>	<u>2</u>	Low
Total Points:	7	

### WILDLIFE HABITAT

Function Rating:

Question 12:	3	<u>High X</u>
Question 13:	2	Medium
Question 14:	2	Low
Question 15:	1	
Question 16:	3	
Question 17:	3	
Question 18:	3	
<u>Question 19:</u>	<u>3</u>	
Total Points:	20	



## Appendix F

### **FISH & WILDLIFE HABITAT DOUMENTATION**

- **ODFW LETTER – APRIL 10, 2002**
- **DLCD LETTER – MAY 31, 2002**
- **ODF LETTER – AUGUST 22, 2002**



# Oregon

John A. Kitzhaber, M.D., Governor

Department of Fish and Wildlife

Sauvie Island Wildlife Area  
North Willamette Wildlife District  
18330 NW Sauvie Island Road  
Portland, OR 97231  
(503) 621-3488  
FAX (503) 621-3025

April 10, 2002



Dick Reynolds  
Senior Planner - City of Cornelius  
120 N. 13<sup>th</sup> Ave.  
PO Box 608  
Cornelius, OR 97113

RE: Fish and Wildlife Habitat Inventory – Statewide Planning Goal 5

Dear Mr. Reynolds;

The Oregon Department of Fish and Wildlife (ODFW), North Willamette Watershed District would like to take this opportunity to update the City of Cornelius inventory of Goal 5 habitats of concern during this Periodic Review process. The habitats of concern for the City of Cornelius include instream habitats, native prairie grasslands, oak woodlands/savanna's, riparian floodplains, and wetlands. These habitats are considered rare and declining throughout much of western Oregon and support a wide range of threatened endangered and sensitive fish and wildlife species. ODFW recommends that the City of Cornelius protect the following five unique and declining fish and wildlife habitat types during both short and long term planning efforts.

**In-stream habitat:** Includes both fish and non-fish bearing streams, primary channels, secondary channels, high flow channels, tributaries, ponds, and oxbows. These types of in-stream habitats have decreased by 50% in the Willamette Valley. Fish bearing streams are identified on the Oregon Department of Forestry Fish Presence/Absence Maps and are essential for spawning, rearing, and migration habitat for Chinook salmon, Coho salmon, winter steelhead, cutthroat trout, Oregon chub, Brook lamprey, Pacific lamprey, and other non-game fish species. The non-fish bearing streams provide important nutrient cycling and water quality functions to support fish populations in downstream waters. In-stream habitat also provides important habitat for various wildlife species of concern including the bald eagle, osprey, great blue heron, northern red-legged frog, western pond turtle, painted turtle, Aleutian Canada goose, and dusky Canada goose.

Fish bearing streams have been identified on the Oregon Department of Forestry – Fish Presence/Absence maps and watercourses are noted on Department of Water Resources maps. Fish Distribution information can also be obtained at the Stream Net website at [www.streamnet.org](http://www.streamnet.org).



**Native prairie grasslands:** Are complex, multiple species communities that have formed under the influence of frequent flood regimes and fire disturbance. Ninety-nine percent of the historic extent of native grasslands has been lost due to agricultural conversion, land development, and fire suppression. Sensitive, threatened, and endangered species that depend upon this habitat type for one or more life functions include: painted turtle, sharptailed snake, western pond turtle, dusky Canada goose, Oregon vesper sparrow, purple martin, burrowing owl, common nighthawk, Lewis' woodpecker, western gray squirrel, pallid bat, long-legged myotis, long-eared myotis, streaked horned lark, grasshopper sparrow, western bluebird, western meadowlark, and blacktailed jackrabbit.

**Oak woodlands/savannah's:** Agricultural conversions, urbanization, and the suppression of fire have caused an 80% decline in this habitat type since pre-European periods. Remaining oak Savannah's and woodlands provide some the Willamette Valleys more important wildlife habitat. Oregon white oak provides nesting habitat for nearly 200 wildlife species. Sensitive, threatened, and endangered species that are dependent upon oak woodlands for their life functions include: pileated woodpecker, western bluebird, Oregon vesper sparrow, Lewis' woodpecker, acorn woodpecker, fringed myotis, silver-haired bat, western gray squirrel, and many others.

**Riparian floodplains:** Are the vegetated zones directly influenced by periodic riverine flooding. Riparian areas in the Willamette Valley have declined by 87% due to diking, channelization, water diversions, agricultural conversion, and urban/industrial uses. The rarest and most ecologically important portions of the riparian floodplain that require protection include: native cottonwood riparian forests, sloughs/oxbows, gravel bars, forested wetlands, and riparian areas within the 25-year flood plain. Listed fish and wildlife species that are dependent upon riparian floodplains for primary life functions include the bald eagle, osprey, great blue heron, northern red-legged frog, Chinook salmon, winter steelhead, and cutthroat trout.

**Wetlands:** Have declined drastically in the Willamette Valley as a result of growing commercial, industrial, and residential developments. Twenty-nine at risk species, including American peregrine falcon, Aleutian Canada goose, dusky Canada goose, purple martin, western pond turtle, painted turtle, tricolored blackbird, northern red-legged frog and Western Oregon little flycatcher utilize wetlands for many of their essential life functions.

The ODFW can assist the city in acquiring and categorizing habitat information. In the 1990's ODFW undertook an effort to map, digitize and field verify land use/land cover maps for the entire Willamette Valley. A manual interpretation of 1:24,000 color aerial photographs (1993) was conducted, transferred to 7.5 minute USGS orthophotoquads, and digitized. Mapped classes include 22 distinct natural vegetation and 6 agricultural cover types. The map data and informational report (Willamette Valley Land Use/Land Cover Map Informational Report, ODFW, March 1998) was provided to state land management agencies and the public. This information can be obtained at the Northwest Habitat Institute web site at [www.nwhi.org](http://www.nwhi.org). In addition, METRO has compiled wildlife habitat and species data for the metropolitan area. Data such as Predicted Species

Diversity and 1998 Natural Areas Maps are available by calling them at (503) 797-1742 or by contacting them on their website at [drc@metro.dst.or.us](mailto:drc@metro.dst.or.us). The Nature Conservancy also has wildlife habitat data available

References for Oregon's sensitive, threatened, and endangered fishes, amphibians, reptiles, birds, and mammals are available in the ODFW publication "Species or Concern". It can be obtained at our website, [www.dfw.state.or.us](http://www.dfw.state.or.us).

In conclusion:

**The ODFW recommends that the City of Cornelius update their list of habitats of concern and protect these at-risk and sensitive habitats through the Periodic Review process.**

I appreciate the opportunity to assist the City of Cornelius during the Periodic Review process and look forward to discussing fish and wildlife issues with you in the future. If you should have any additional questions, please feel free to contact me during normal working hours at (503) 621-3488.

Sincerely,



Donald J. VandeBergh  
Assistant District Wildlife Biologist  
North Willamette Watershed District

Enclosures:

Oregon list of threatened and endangered fish and wildlife species.  
Oregon Department of Fish and Wildlife Sensitive Species.  
Listed species of fish in Oregon

Cc: Patty Snow  
Jeff Boechler  
Tom Thornton  
Jim Muck  
Dick Caldwell  
File



# Oregon

John A. Kitzhaber, M.D., Governor

Department of Land Conservation & Development

800 NE Oregon St. # 18

Portland, OR 97232

(503) 731-4065

FAX (503) 731-4068

May 31, 2002

Mr. Dick Reynolds, Senior Planner  
Cornelius Community Development Department  
Box 608  
Cornelius, OR 97113

Post-it* Fax Note	7671	Date	5/31	# of pages	2
To	Dick Reynolds	From	A Weber		
Co./Dept.		Co.			
Phone #	-	Phone #	731-4065x26		
Fax #	357-6322	Fax #			

**Re: Goal 5 Wildlife Habitat Inventory**

Dear Mr. Reynolds:

In a May 14<sup>th</sup> 2002 letter to Darci Rudzinski, Portland Metro Area Regional Representative, you asked if the Department of Land Conservation and Development (DLCD) would interpret an April 10, 2002 letter from Don VandeBergh with the Oregon Department of Fish and Wildlife (ODFW) "... as meeting the intent of OAR 660-023-110(3)." You also asked if the city could use habitat inventory information developed or gathered by other parties to complete the habitat inventory for the City of Cornelius. In following up on your request, you and I have had a couple of phone conversations. In addition, I have talked with Metro staff familiar with wildlife habitat inventories in the Metro area. Recently you asked that I provide Cornelius with a written response to your request.

OAR 660-023-110(3) describes the basic requirements of a "standard" (i.e., not "safe harbor") Goal 5 inventory process for wildlife habitat. It says that when local governments use the standard inventory process, they

"... shall obtain current habitat inventory information from the Oregon Department of Fish and Wildlife ... and other state and federal agencies. These inventories shall include at least the following:

- (a) Threatened, endangered, and sensitive wildlife species habitat information;
- (b) Sensitive bird site inventories; and
- (c) Wildlife species of concern and/or habitats of concern identified and mapped by ODFW..." (OAR 660-023-110(3))

The basic intent of the Goal 5 habitat inventory requirement is for a jurisdiction, with the assistance of ODFW and other agencies, to identify habitats needing protection, and to then determine if those habitats exist within its planning area. Thus, an inventory that meets the intent of the rule will include the species and habitat information listed in the rule, the results of an inventory to identify such habitats, or some evidence that such habitats do not exist in a planning area. As such, ODFW's letter only partly fulfills the intent of the rule.

ODFW's letter identifies habitats of concern and indicates where information about such habitats may be acquired. Mr. VandeBergh describes five habitats of concern: instream habitats, native prairie grasslands, oak woodlands/savanna, riparian floodplains, and wetlands. Mr. VandeBergh

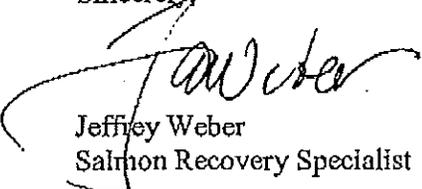
also lists where current inventory information on these (and presumably other) habitat types may be acquired. You noted in your May 14<sup>th</sup> letter that the city is identifying instream habitats, wetlands, and riparian floodplains. You are not sure if there are prairie grasslands or oak woodlands in Cornelius.

I have not personally reviewed the inventory information available from the sources identified in ODFW's letter. However, I believe that it would be sufficient to help meet the requirement of OAR 660-23-110(3). This conclusion is based on my understanding that the wildlife habitat inventory recently developed by Metro represents the most current habitat information available in the region. Among other things, Metro's inventory apparently contains information on oak woodland and native prairie grassland habitats. It probably also includes information from the other inventories cited by Mr. VandeBergh.

Ultimately, in order to complete an inventory that meets the intent of OAR 660-023-110(3), the city will need to make every effort to utilize the information available from the sources identified in ODFW's letter to determine if any of the habitats of concern are in Cornelius's planning area.

I hope this letter is helpful to you in your efforts to complete a Goal 5 wildlife habitat inventory for Cornelius. If you need to discuss these matters further, please don't hesitate to call me at (503) 731-4065 x26.

Sincerely,



Jeffrey Weber  
Salmon Recovery Specialist

CC: Snow  
VandeBergh  
Ketcham  
Rudzinski  
file



# Oregon

John A. Kitzhaber, M.D., Governor

## Department of Forestry

Forest Grove District  
801 Gales Creek Road  
Forest Grove, OR 97116  
(503) 357-2191  
FAX (503) 357-4548



"STEWARDSHIP IN  
FORESTRY"

Mike Cafferata  
Oregon Department of Forestry  
801 Gales Creek Rd.  
Forest Grove, OR 97116

8/22/2002

Dick Reynolds  
Community Development Department  
1355 N. Barlow Street  
Cornelius, OR 97113

Dear Mr. Reynolds,

Records from the ODF District Office in Forest Grove indicate that as of August of 2002 there is no documentation of sensitive bird nesting, roosting, or watering resource sites for osprey or great blue herons within the City of Cornelius. Two Bald Eagle nests have been documented along the Tualatin River drainage outside of the City of Cornelius, one at Jackson Bottom Wetlands and the other at Fern Hill Wetlands.

Sincerely,

Mike Cafferata  
Forest Practices Forester

RECEIVED

AUG 23 2002

Community Development

RECEIVED

AUG 23 2002

Community Development

RECEIVED

AUG 23 2002

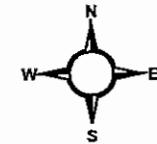
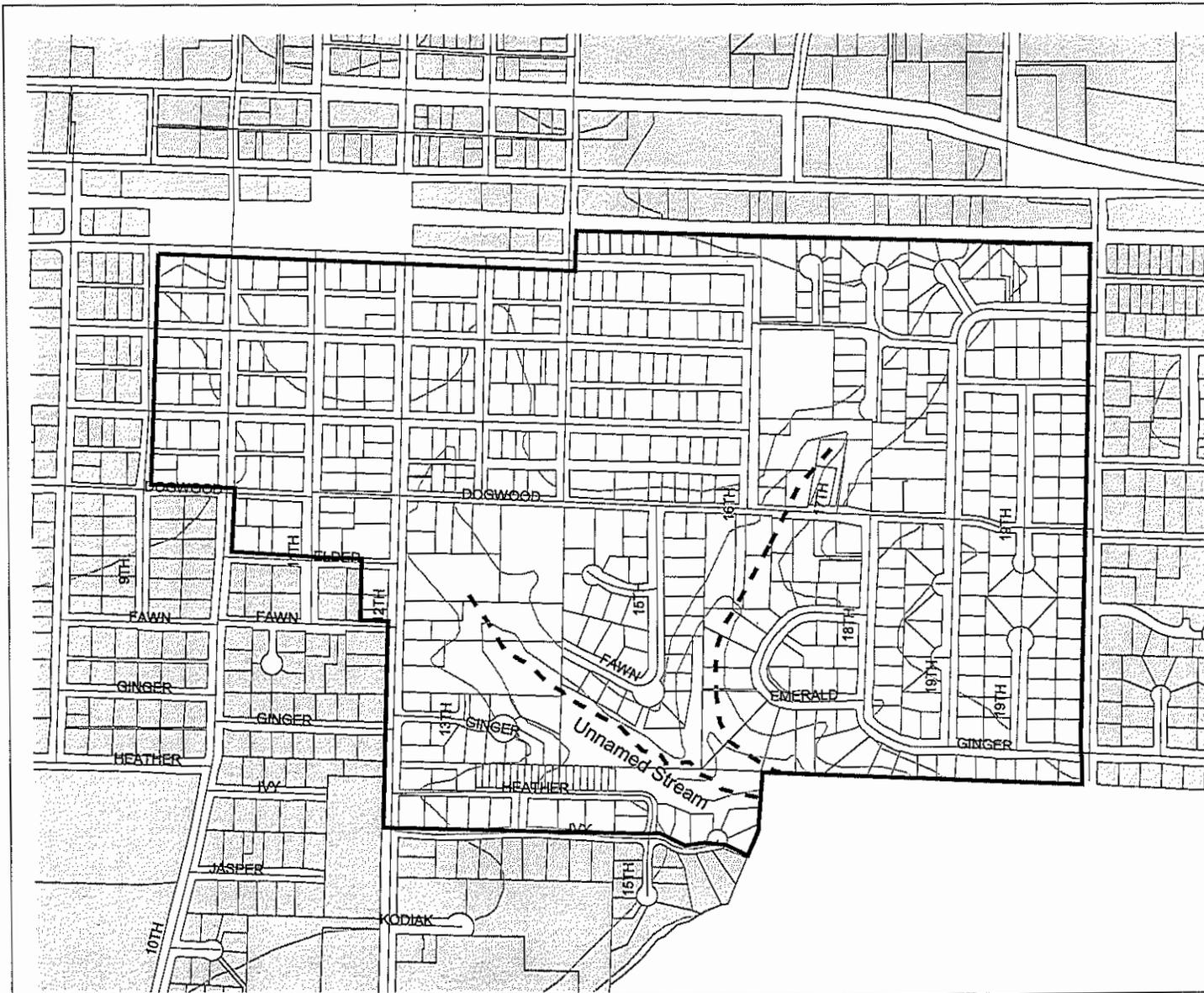
Community Development



# Appendix G

## UNNAMED STREAM MAPS

# Unnamed Stream Drainage Area #2

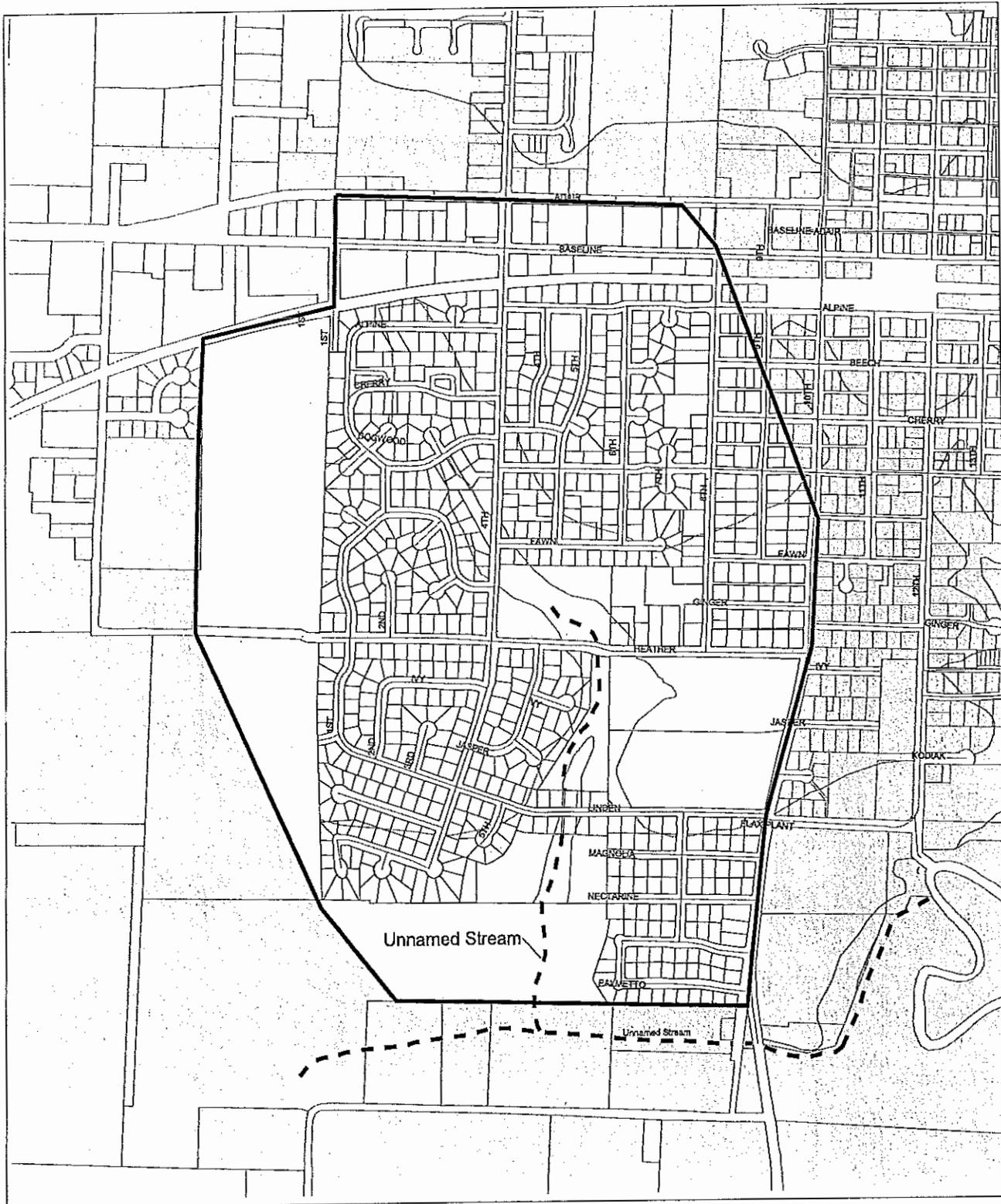


- Streets
- Contour Lines
- Streams
- Unnamed Drainage Area - Approximately 148.43 Acres

1:7200

300 0 300 Feet





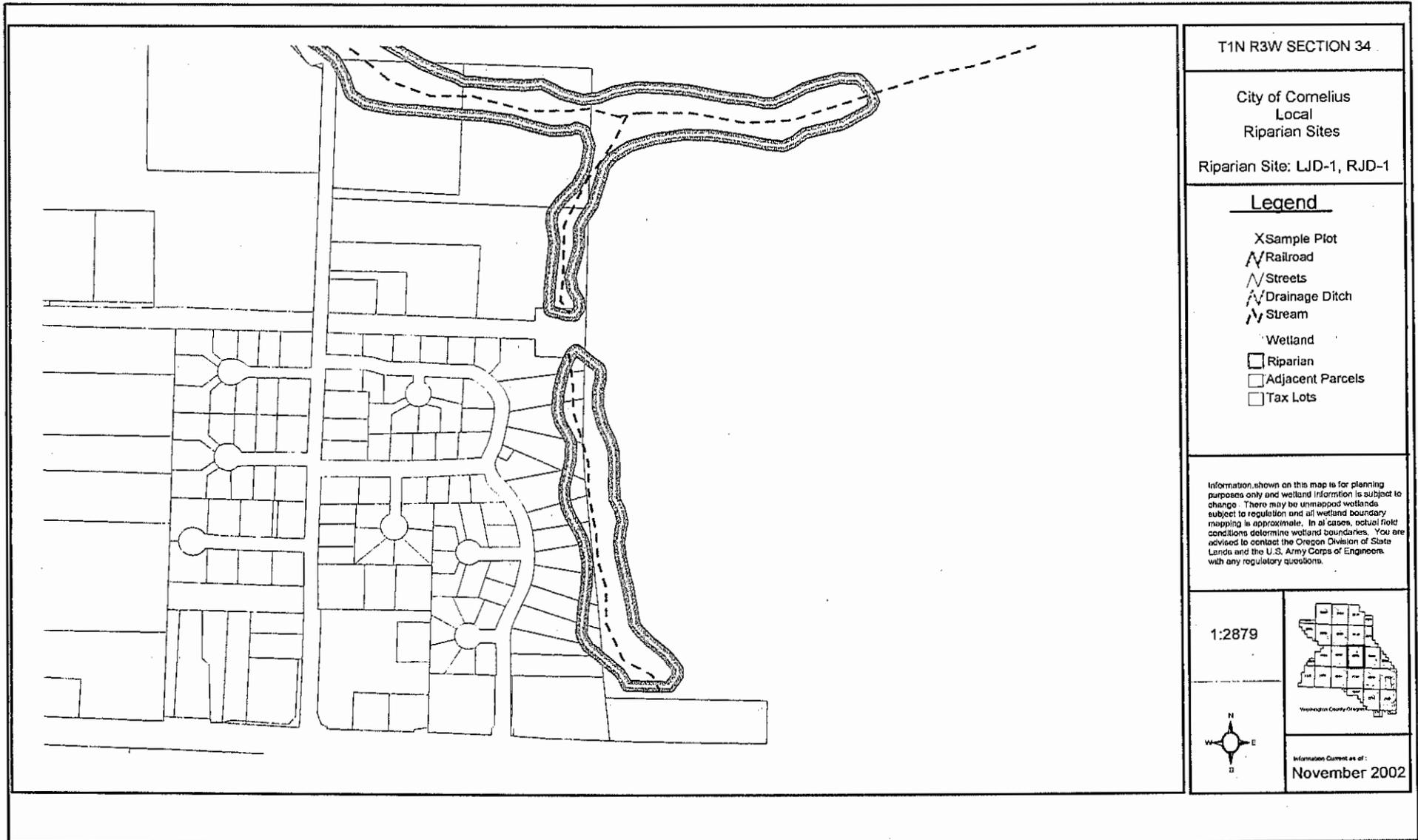
# Unnamed Stream Drainage Area #1



-  Streets
-  Contour Lines
-  Streams
-  Unnamed Drainage Area-  
Approximately 316 Acres

# Appendix H

## RIPARIAN CORRIDOR MAPS



T1N R3W SECTION 34

City of Cornelius  
Local  
Riparian Sites

Riparian Site: LJD-1, RJD-1

**Legend**

- X Sample Plot
- ≡ Railroad
- ≡ Streets
- ≡ Drainage Ditch
- ≡ Stream
- Wetland
  - Riparian
  - Adjacent Parcels
  - Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

1:2879



Information Current as of:  
**November 2002**

T1N R3W SECTION 33 & 34

City of Cornelius  
 Local  
 Riparian Sites  
 Riparian Sites: RCC-1A, RCC-1D, RCC-1C

Legend

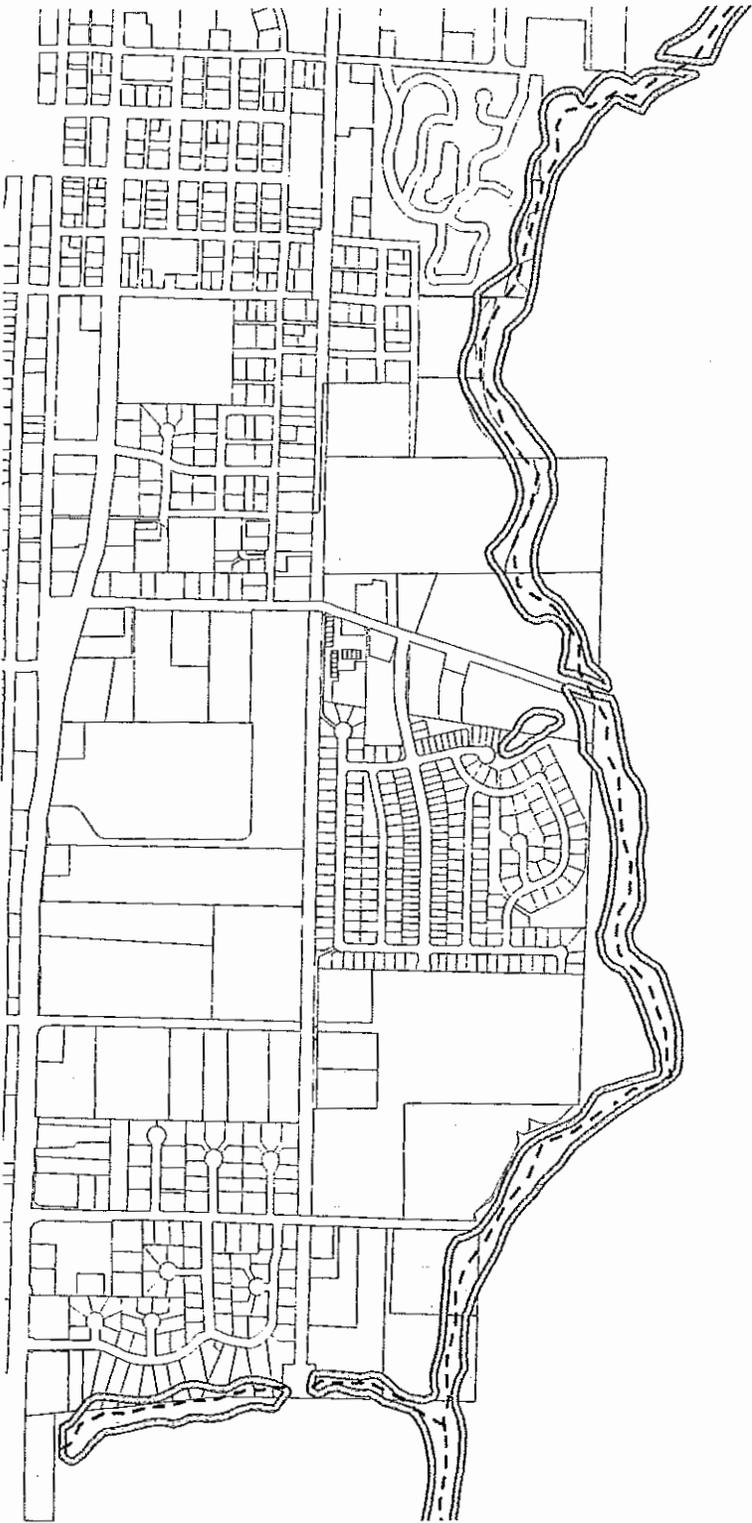
- X Sample Plot
- Railroad
- Streets
- Drainage Ditch
- Stream
- Wetland
- Riparian
- Adjacent Parcels
- Tax Lots

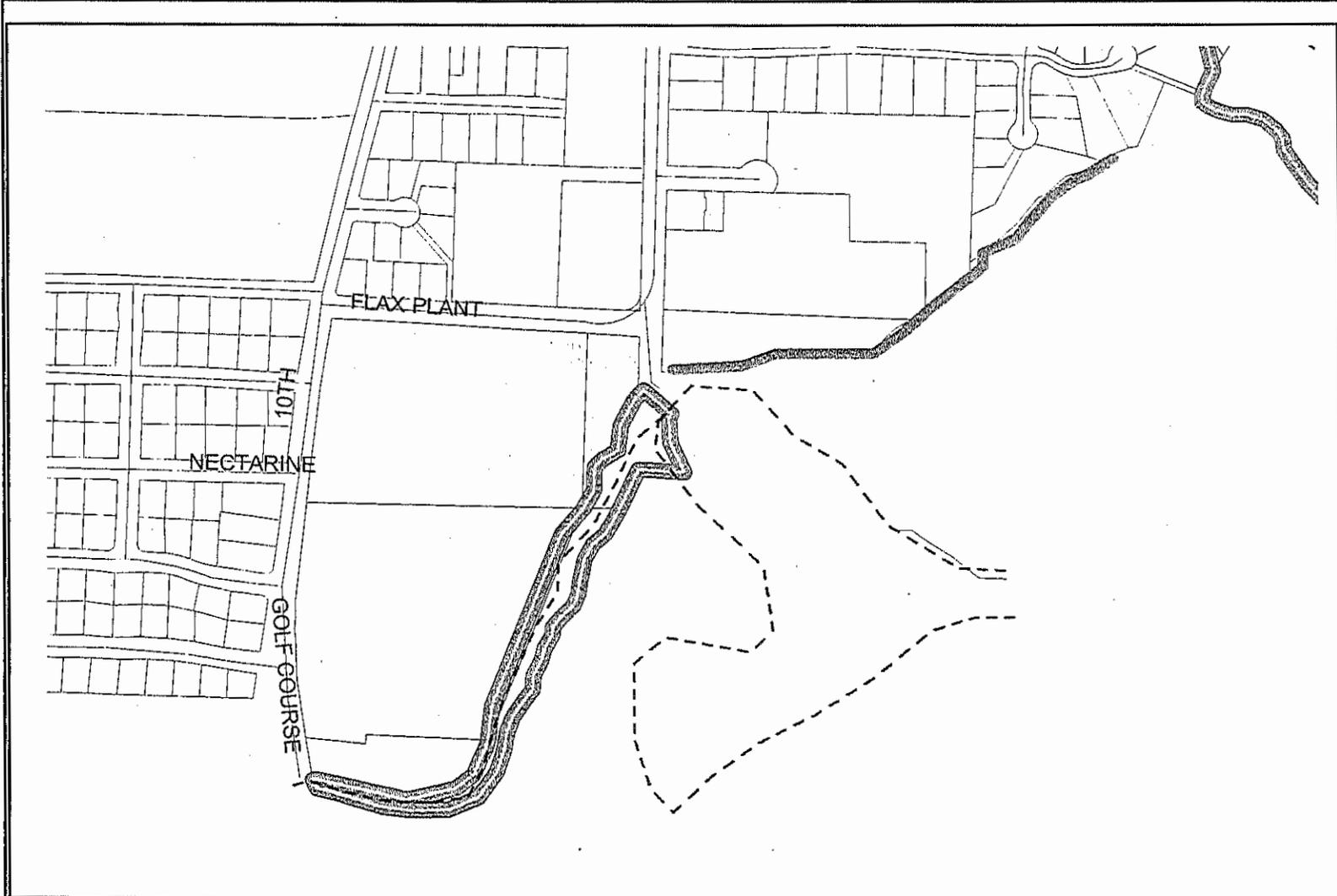
Information shown on this map is for planning purposes only and wetland information is subject to regulation and all wetland boundary conditions are approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to consult the Oregon Department of Fish and Wildlife for more information or to discuss with any regulatory jurisdiction.

1:2988



Revised: Current as of:  
 November 2002





T1S R3W SECTION 04

City of Cornelius  
Local  
Riparian Sites

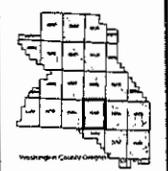
Riparian Site: LTR-1

**Legend**

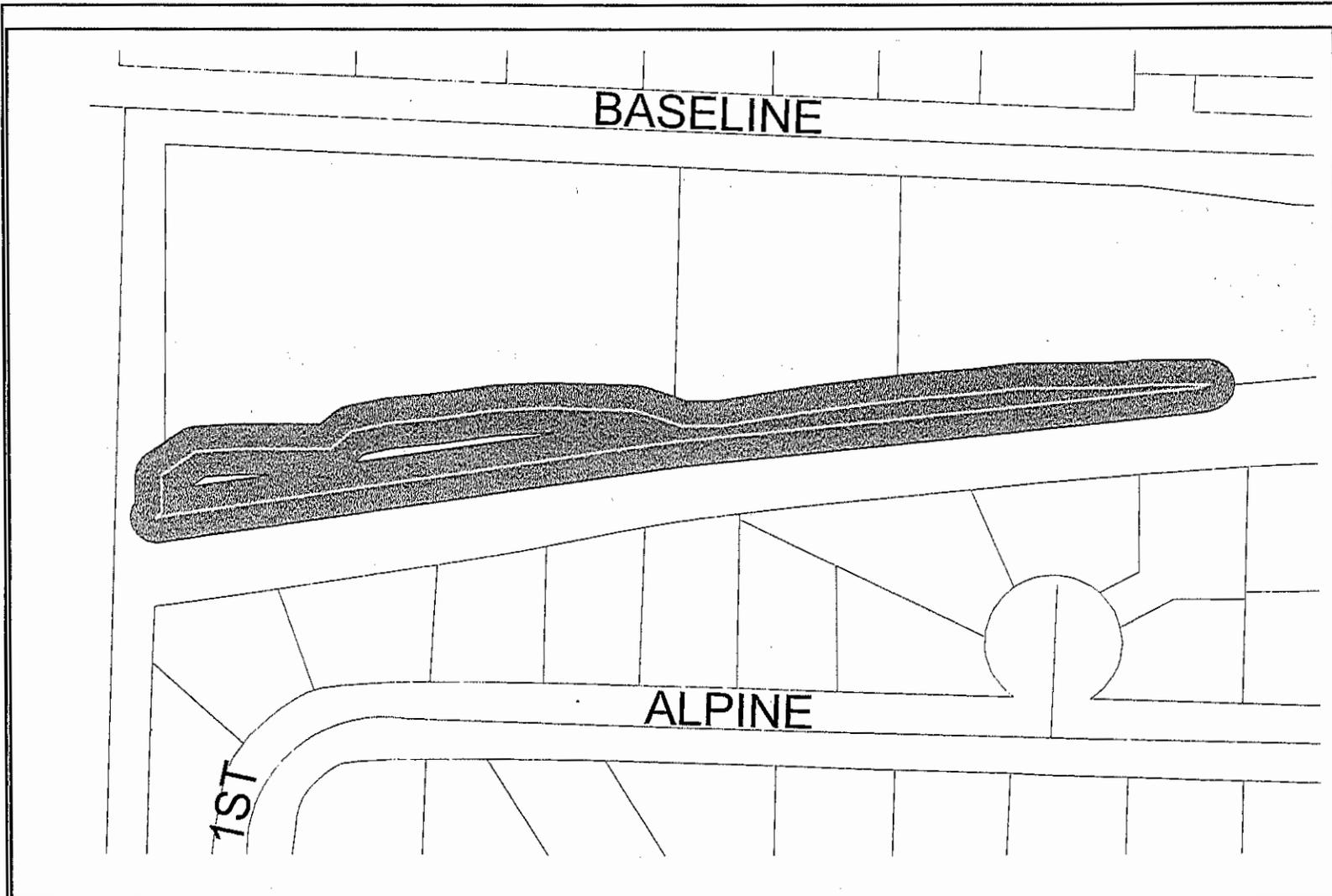
- X Sample Plot
- ▨ Railroad
- ▨ Streets
- ▨ Drainage Ditch
- ▨ Stream
- ▨ Wetland
- ▨ Riparian
- ▨ Adjacent Parcels
- ▨ Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

1:3046



Information Current as of:  
**November 2002**



T1S R3W SECTION 04

City of Cornelius  
Local  
Riparian Sites

Riparian Site: RTD-3, LTD-3

**Legend**

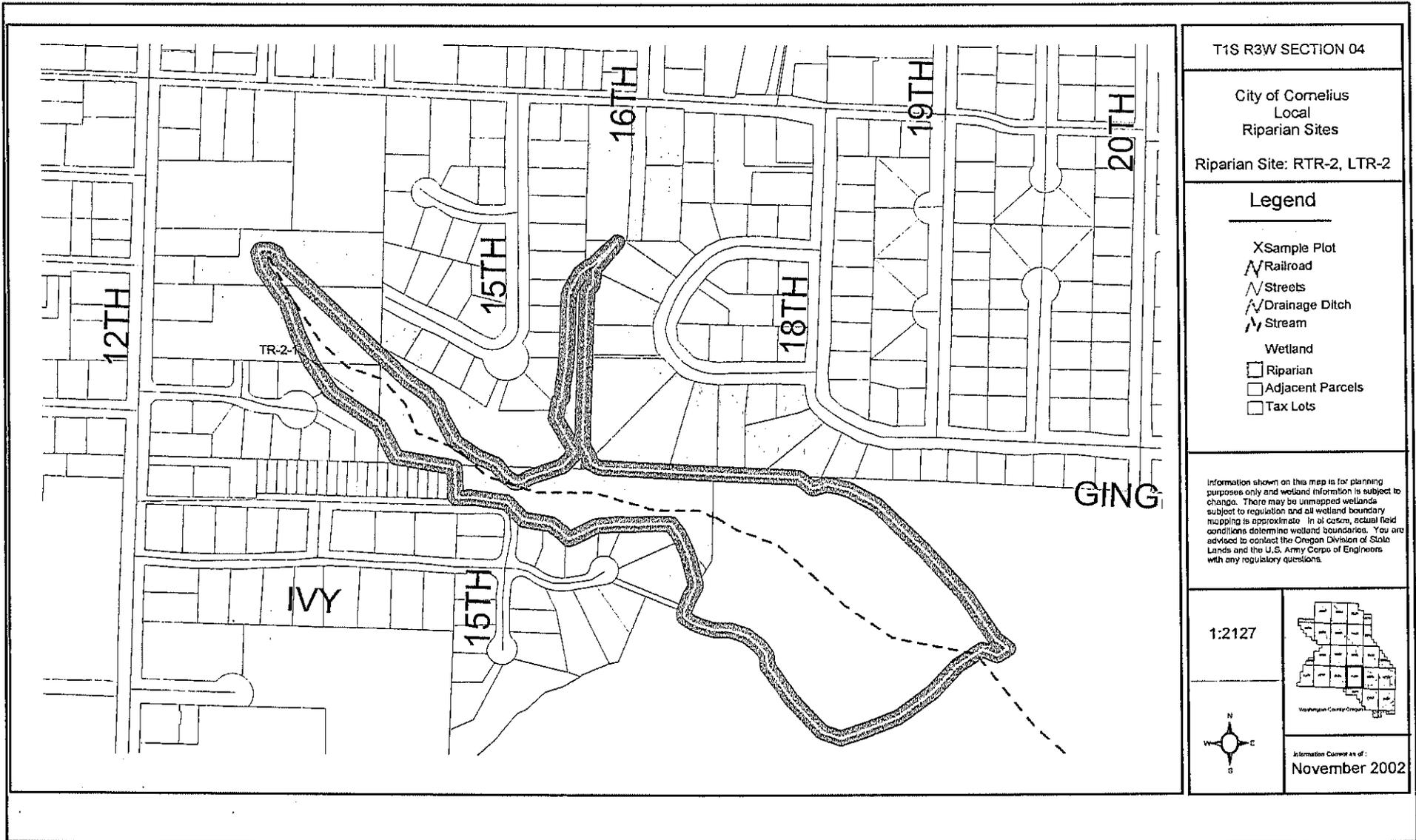
- X Sample Plot
- ∨ Railroad
- ∨ Streets
- ∨ Drainage Ditch
- ∨ Stream
- Wetland
  - Riparian
  - Adjacent Parcels
  - Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

1:883



Information Current as of:  
**November 2002**



T1S R3W SECTION 04

City of Cornelius  
Local  
Riparian Sites

Riparian Site: RTR-2, LTR-2

**Legend**

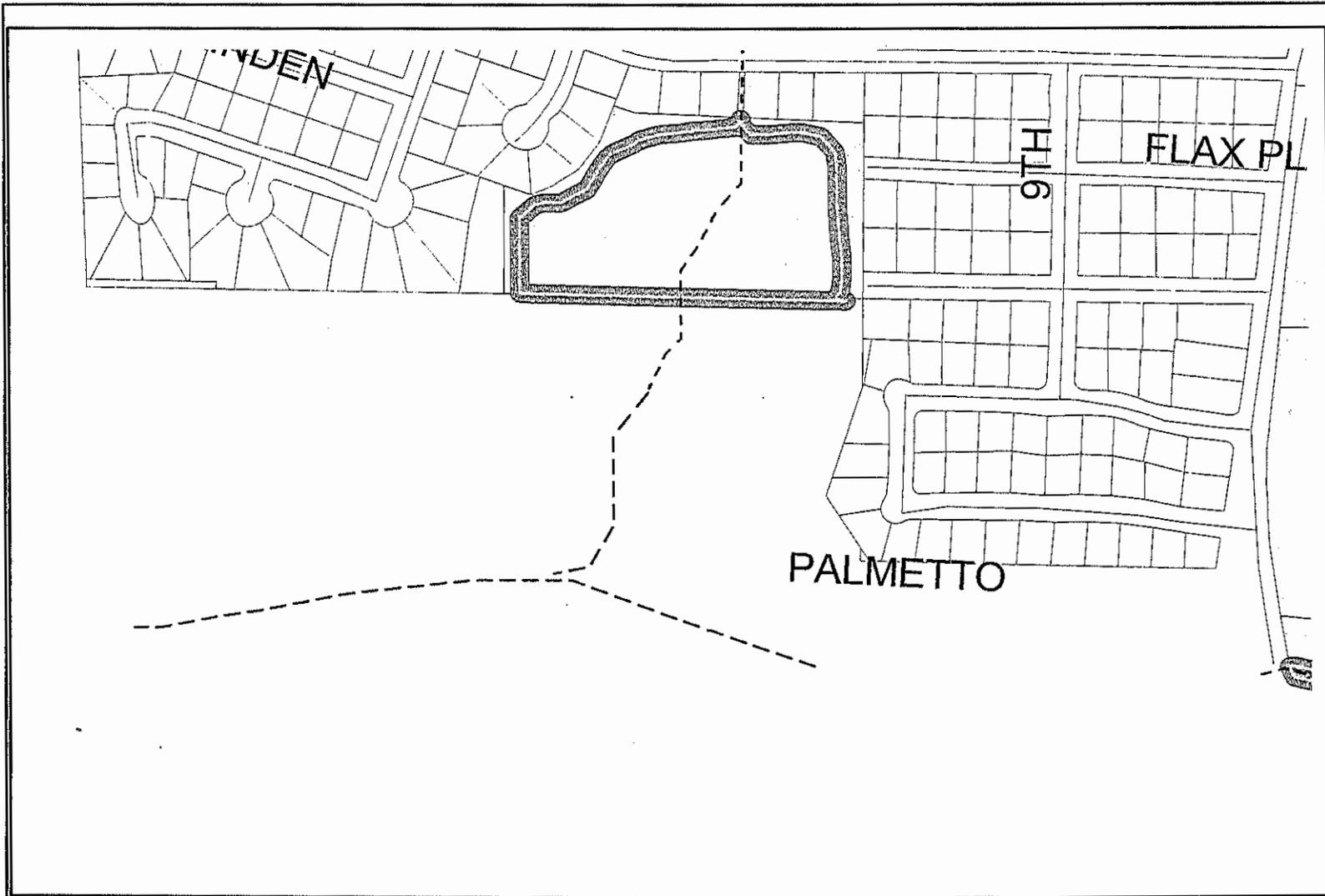
- X Sample Plot
- ∨ Railroad
- ∨ Streets
- ∨ Drainage Ditch
- ∨ Stream
- Wetland
  - Riparian
  - Adjacent Parcels
  - Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

1:2127



Information Current as of:  
**November 2002**



T1S R3W SECTION 04

City of Cornelius  
Local  
Riparian Sites

Riparian Site: RTD-2, LTD-2

**Legend**

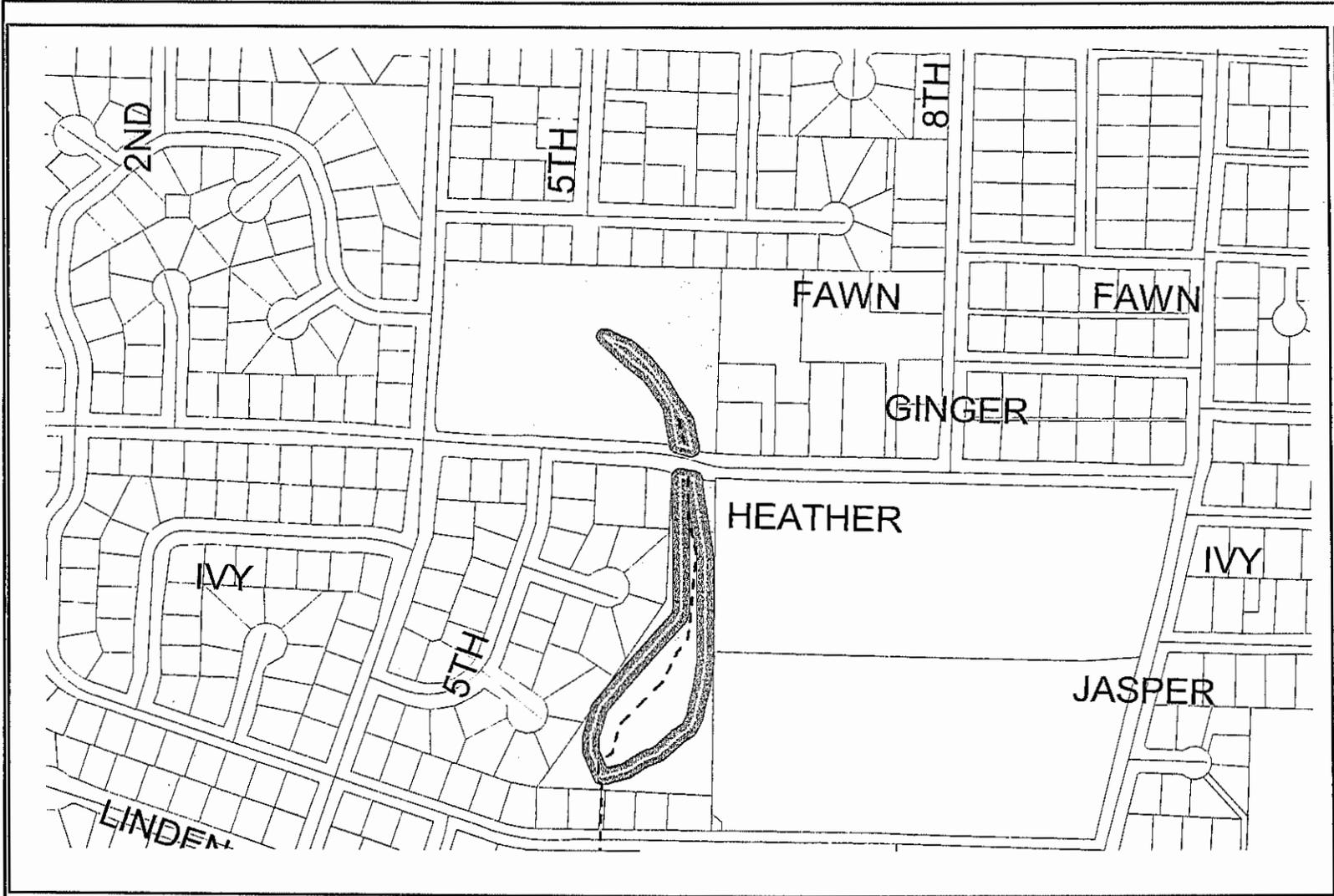
- X Sample Plot
- ▬ Railroad
- Streets
- - - Drainage Ditch
- ~ Stream
- Wetland
- ▭ Riparian
- - - Adjacent Parcels
- ▭ Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

1:1244



Information Current as of:  
**November 2002**



T1S R3W SECTION 04

City of Cornelius  
Local  
Riparian Sites

Riparian Site: RTD-1, LTD-1

**Legend**

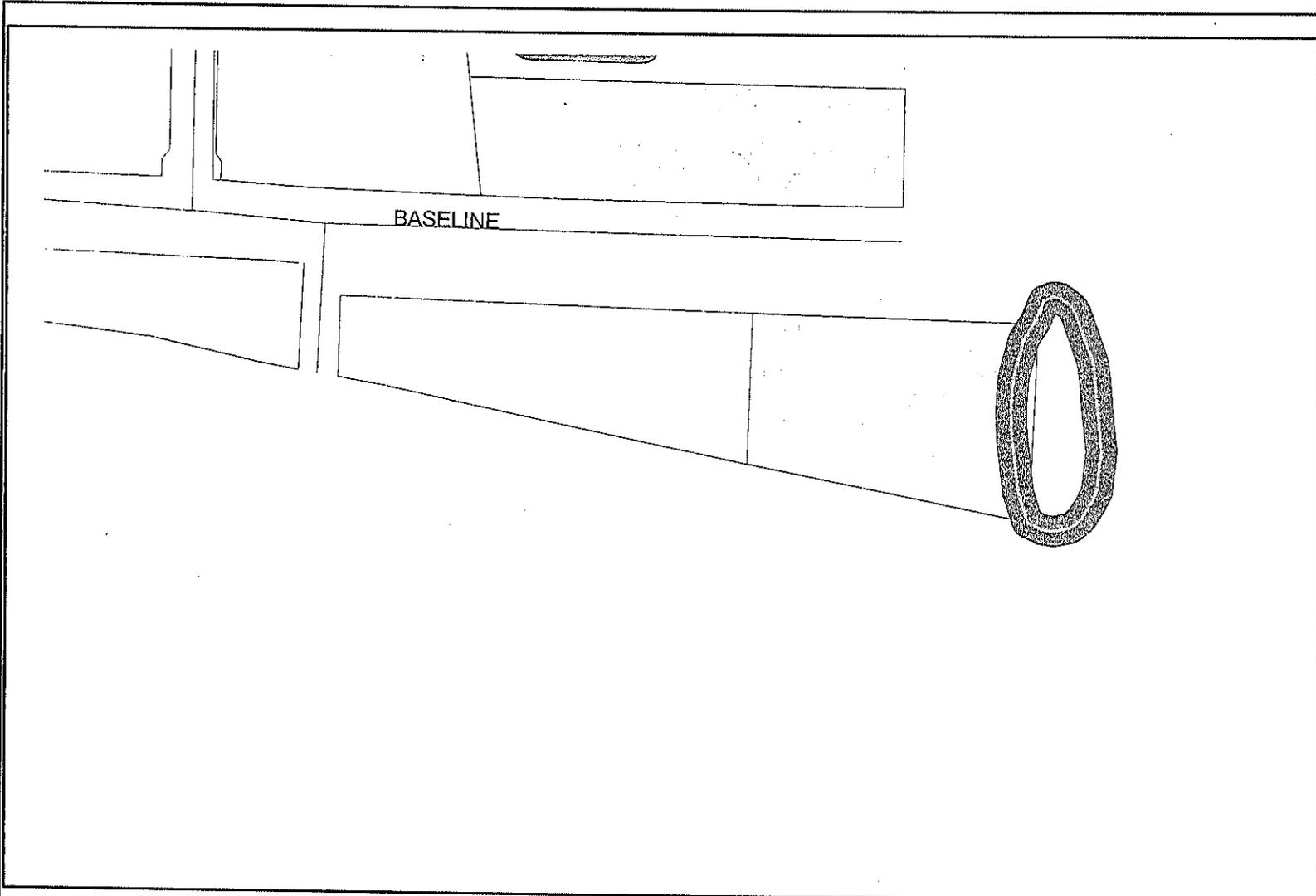
- X Sample Plot
- Railroad
- Streets
- Drainage Ditch
- Stream
- Wetland
- Riparian
- Adjacent Parcels
- Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

1:1244



Information Current as of:  
**November 2002**



T1S R3W SECTION 02

City of Cornelius  
Local  
Riparian Sites

Riparian Site: RJD-2

**Legend**

- X Sample Plot
- ∩ Railroad
- ∩ Streets
- ∩ Drainage Ditch
- ∩ Stream
- Wetland
  - ▣ Riparian
  - ▣ Adjacent Parcels
  - ▣ Tax Lots

Information shown on this map is for planning purposes only and wetland information is subject to change. There may be unmapped wetlands subject to regulation and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.

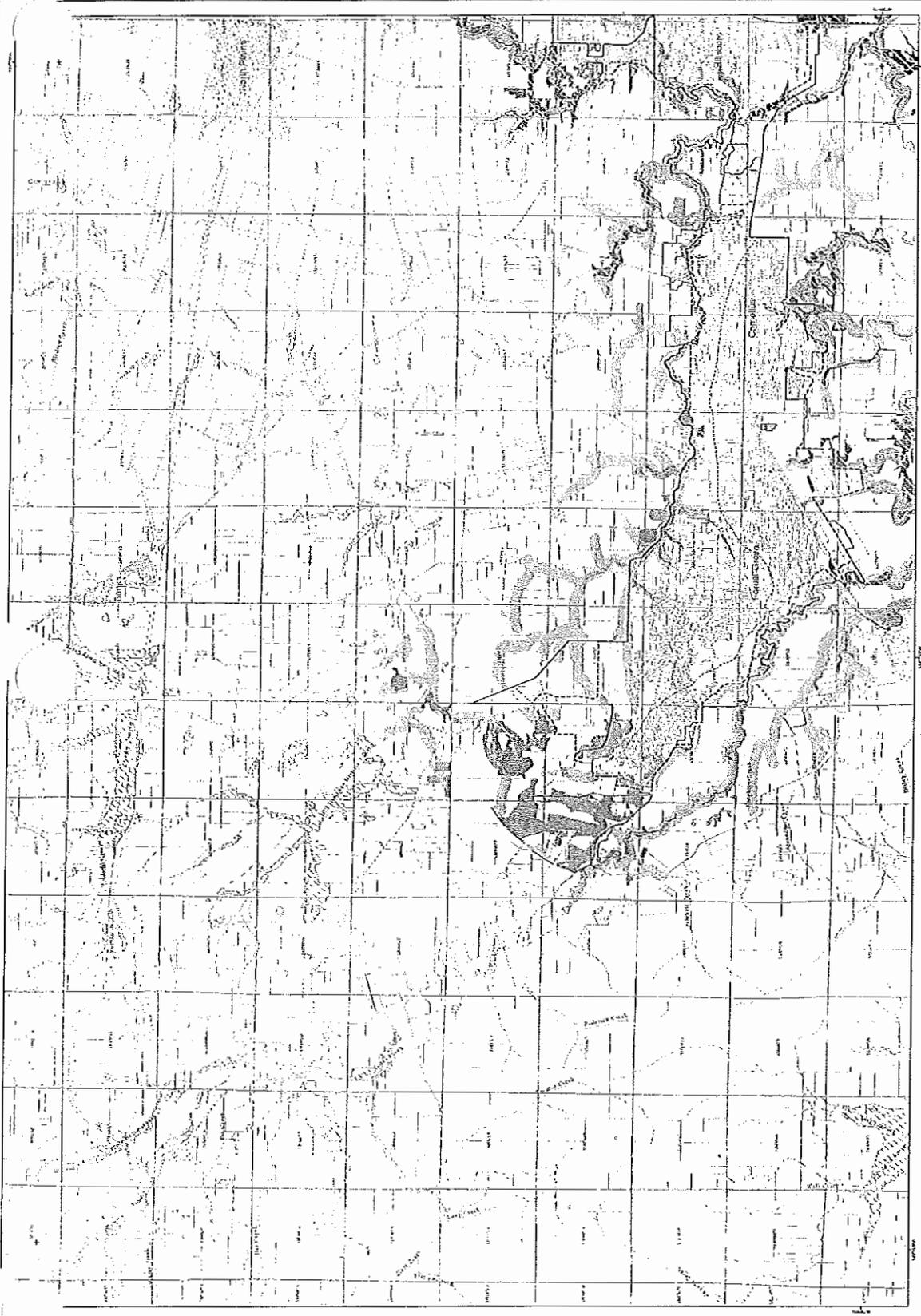
1:565



Information Current as of:  
**November 2002**

# Appendix I

## **METRO REGIONAL SERVICES FISH & WILDLIFE HABITAT MAPS**



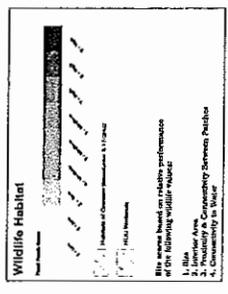
# Gales Creek & Forest Grove Quads (2 of 10)

## Potential Wildlife Habitat

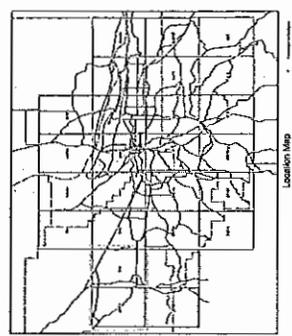
By Total Wildlife Value Score

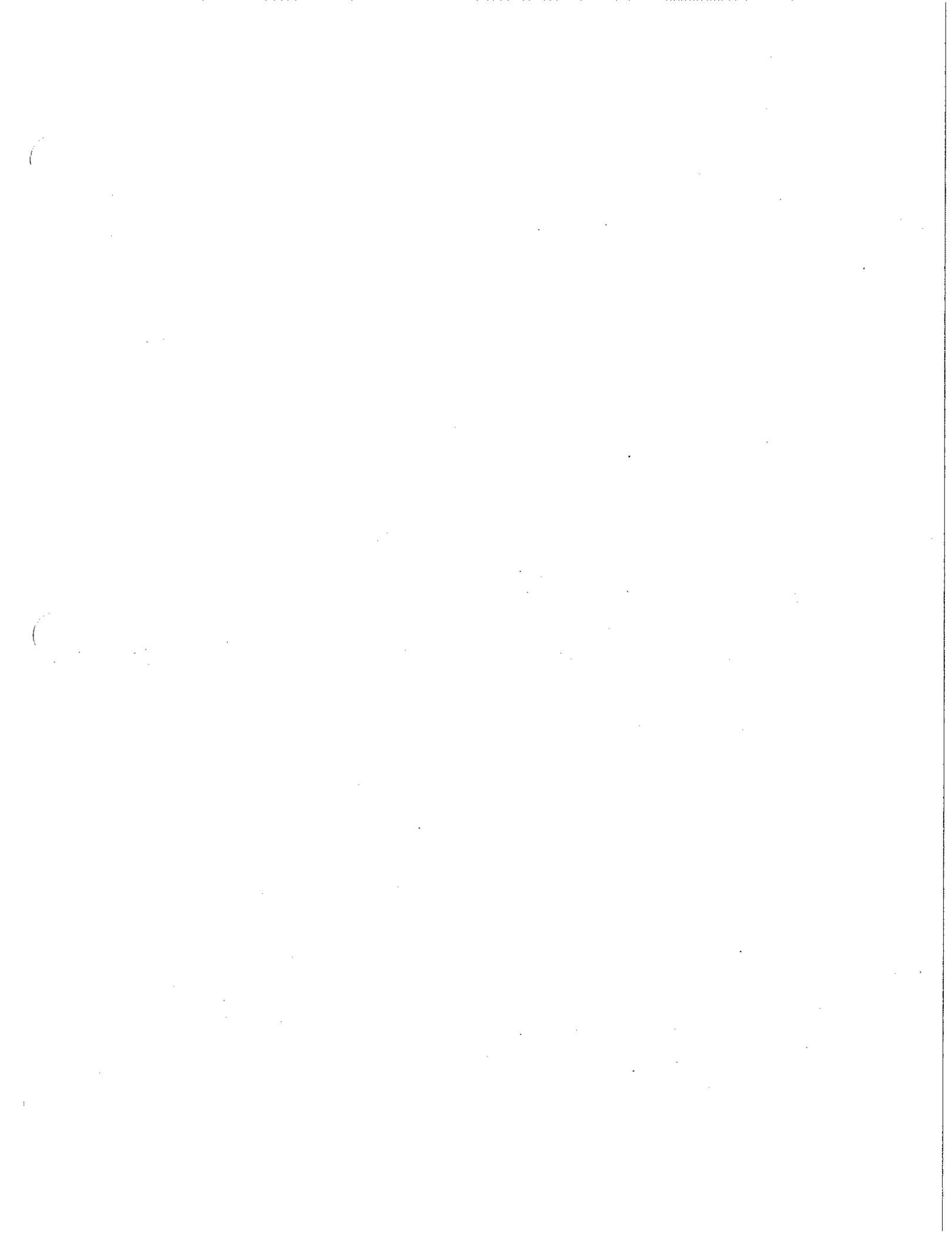
Wildlife value scores and habitats of concern are based on the criteria matrix attached to proposed Council Resolution 09-3177.

4/17/2002  
Decision Draft



ALL INFORMATION ON THIS MAP IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE.





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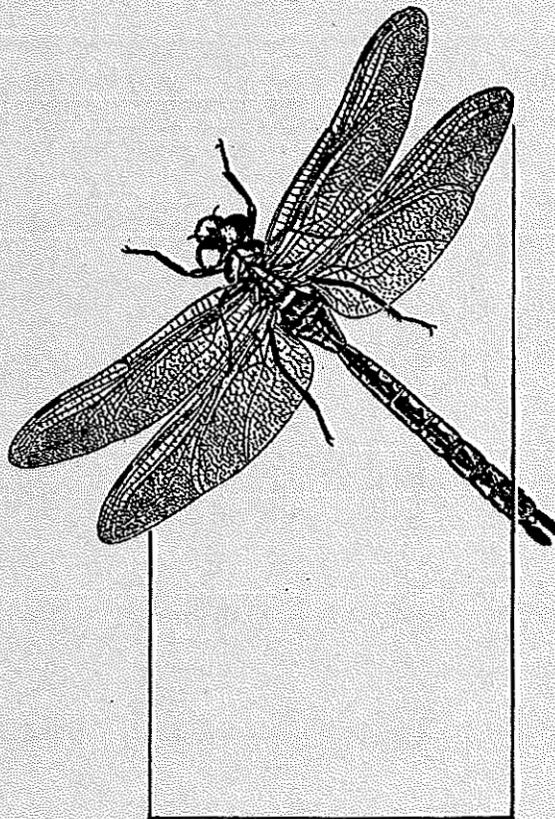
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**CITY OF CORNELIUS**  
**NATURAL RESOURCE INVENTORY**  
**PART II**



**ADOPTED JUNE 16, 2014 – ORDINANCE NO. 2014-13**

**CITY OF CORNELIUS  
ORDINANCE NO. 2014-13**

**AN ORDINANCE OF THE CORNELIUS CITY COUNCIL AMENDING CHAPTER IV,  
LAND USE AND APPENDICES OF THE COMPREHENSIVE PLAN AND THE  
NATURAL RESOURCE PROTECTION PLAN**

**WHEREAS**, the City of Cornelius Community Development Department reviewed and analyzed the proposal for compliance with the Comprehensive Plan and Chapter 18 of the City Code (also known as the Development & Zoning Code) and recommended to the Planning Commission to recommend approval of the request to City Council; and

**WHEREAS**, the City of Cornelius provided public notice consistent with Chapter 18.15.030, Development and Zoning Code 20 days, prior to the Planning Commission Hearing held on June 3, 2014; and

**WHEREAS**, the City of Cornelius Community Development Department further reviewed and analyzed the proposal for compliance with the Statewide Planning Goals, Oregon Administrative Rules and the Metro Functional Plan; and

**WHEREAS**, the City of Cornelius Planning Commission has conducted an analysis, including review of reports prepared by the City Community Development Department, and has further considered the matter in a public hearing duly noticed; and

**WHEREAS**, the City of Cornelius Planning Commission held a public hearing on the proposed amendment and based on the facts, findings and conclusions presented in the staff report and public testimony received, the Planning Commission adopted by motion to recommend to City Council the Comprehensive Plan Amendments for final adoption; and

**WHEREAS**, the City of Cornelius City Council, after providing the required notices, held a public hearing on June 16, 2014 to review the record of the Planning Commission, and to hear and consider additional evidence and testimony on the matter; and

**WHEREAS**, the City Council finds the proposed Comprehensive Plan Amendments to be in compliance with the City's Comprehensive Plan, the City's Development & Zoning Code, the Statewide Planning Goals, Oregon Administrative Rules and the Metro Functional Plan; as set forth in the Findings Report and the Planning Commission Recommendation Report, attached hereto as Exhibit # 1.

**NOW THEREFORE, BASED ON THE FOREGOING, THE CITY OF CORNELIUS  
ORDAINS AS FOLLOWS:**

**SECTION 1.** The City Council for the City of Cornelius hereby approves the proposed Comprehensive Plan Amendments with conditions listed in the Findings Report (CPA-02-14), see Exhibit # 1.

**Section 2.** This action shall take effect 30 days from adoption.

**SUBMITTED and ADOPTED** by the Cornelius City Council and read into the record at a regularly scheduled meeting on the 16th day of June 2014.

By: Jeffrey C. Dalin  
Jeffrey C. Dalin, Mayor

ATTEST:

By: Debby Roth  
Debby Roth, MMC, City Recorder

# **NATURAL RESOURCE INVENTORY**

## **SECTION II - NHIP AREA**

### **NORTH HOLLADAY INDUSTRIAL PARK (NHIP) NATURAL RESOURCE INVENTORY**

The North Holladay Industrial Park Wetland Delineation Report is added to the Comprehensive Plan as Section II of the Natural Resource Inventory.

The North Holladay Industrial Park Natural Resource Assessment was conducted as part of the analysis needed for application to the State for a Certified Industrial Site. The project area included land located inside the City and land within the Cornelius Urban Growth Boundary in Washington County.

The natural resources identified in the project area by the Assessment were wetlands and the abutting Council Creek. There were twelve (12) wetlands delineated and four were located within the City and eight (8) were located outside the City, but within the Urban Growth Boundary.

The North Holladay Industrial Park Wetland Delineation was completed by Pacific Habitat Services in July 2013. The City of Cornelius submitted the report to the Department of State Lands for review and concurrence. On March 24, 2014 the Department of State Lands issued a concurrence letter for the twelve (12) wetlands and Council Creek.

**Wetland Delineation  
for the  
North Holladay Industrial Park Project  
in Cornelius, Oregon**

(Township 1 North, Range 3 West, Section 33, Tax Lot 200 south of Council  
Creek; Section 33B, Tax Lots 100, 300, and 400 south of Council Creek;  
Section 33CA, Tax Lots 100, 400, 700, 800, 900, 1800, 1900; and Section 33DB,  
Tax Lots 300, 400, 500, 600, and 700)

**Prepared for**

Mackenzie  
Portland, Oregon

**Prepared by**

**Pacific Habitat Services, Inc.**  
Wilsonville, Oregon 97070  
(503) 570-0800  
(503) 570-0855 FAX

**July 19, 2013**

**Wetland Delineation**  
**for the**  
**North Holladay Industrial Park Project**  
**Cornelius, Oregon**

(Township 1 North, Range 3 West, Section 33, Tax Lot 200 south of Council Creek; Section 33B, Tax Lots 100, 300, and 400 south of Council Creek; Section 33CA, Tax Lots 100, 400, 700, 800, 900, 1800, 1900; and Section 33DB, Tax Lots 300, 400, 500, 600, and 700)

**Prepared for**

Mackenzie  
1515 SE Water Ave, Suite 100  
Portland, OR 97214

**Prepared by**

Tina Farrelly  
Amy Hawkins  
Shawn Eisner

**Pacific Habitat Services, Inc.**  
9450 SW Commerce Circle, Suite 180  
Wilsonville, Oregon 97070  
(503) 570-0800  
(503) 570-0855 FAX

PHS Project Number: 5095

**July 19, 2013**

# TABLE OF CONTENTS

	<u>Page</u>
<b>I. INTRODUCTION.....</b>	<b>1</b>
<b>II. RESULTS AND DISCUSSION .....</b>	<b>1</b>
A. Landscape Setting and Land Use .....	1
B. Site Alterations.....	2
C. Precipitation Data and Analysis.....	2
D. Methods .....	3
E. Description of All Wetlands and Other Non-Wetland Waters.....	4
F. Deviation from LWI or NWL.....	10
G. Mapping Method.....	10
H. Additional Information.....	10
I. Results and Conclusions .....	10
J. Disclaimer.....	11
<b>III. REFERENCES.....</b>	<b>12</b>

## APPENDIX A: Figures

- Figure 1: Vicinity Map (USGS)
- Figure 2-2C: Tax Lot Maps
- Figure 3A/B: Local Wetland and National Wetland Inventories
- Figure 4: Soil Survey
- Figure 5: Aerial Photo
- Figure 6: Potentially jurisdictional wetland (Wetland Delineation Map)

APPENDIX B: Wetland Delineation Data Sheets

APPENDIX C: Site photos (ground level)

APPENDIX D: Wetland Definitions and Methodology (Client only)

## I. INTRODUCTION

Pacific Habitat Services, Inc. (PHS) conducted a wetland delineation for the proposed North Holladay Industrial Park Site in unincorporated Washington County and Cornelius, Oregon (Township 1 North, Range 3 West, Section 33, Tax Lot 200 south of Council Creek; Section 33B, Tax Lots 100, 300, and 400 south of Council Creek; Section 33CA, Tax Lot 100, 400, 700, 800, 900, 1800, 1900; and Section 33DB, Tax Lot 300, 400, 500, 600, and 700). The properties surveyed are proposed for industrial site certification. Field work for the delineation occurred on June 6, 11, 13, & 19, 2013.

This report presents the results of PHS's wetland delineation within the study area. Figures, including a map depicting the location of wetlands within the study area, are located in Appendix A. Data sheets documenting on-site conditions are provided in Appendix B. Ground-level photos of the site are located in Appendix C. A discussion of the wetland delineation methodology is provided for the client in Appendix D.

## II. RESULTS AND DISCUSSION

### A. Landscape Setting and Land Use

The study area includes properties on both sides of the urban growth boundary north of Baseline Street/Oregon Highway 8 and west of N. 10<sup>th</sup> Avenue on the northern edge of the City of Cornelius, Oregon. The southern portion of the site is located within the City of Cornelius, and is zoned industrial. Lots 33CA 700, 800, 1800 and 1900 are developed and include two residences; a landscaping supply yard; and an undetermined industrial property. The remaining parcels within the City are currently used for agriculture, and are planted with grass seed crops. The fields are relatively flat, with very little topographic variation. Planted grasses include perennial ryegrass (*Lolium perenne*, FAC) and tall fescue (*Festuca arundinacea*, FAC). Annual bluegrass (*Poa annua*, FAC), barnyardgrass (*Echinochloa crus-galli*, FAC), an unidentified mustard species (*Brassicaceae sp.*), and other weedy annual species were also present within the planted fields.

The northern portion of the site, located within unincorporated Washington County, north of Cornelius is zoned for future development. Topography is generally sloped towards Council Creek. Land in the northeastern portion of the site is currently planted with grasses and/or row crops. The northwestern portion of the site is undeveloped land covered in areas dominated by herbaceous vegetation, native and non-native shrubs, mature Douglas-fir (*Pseudotsuga menziesii*, FACU), and mixed riparian forest. In open/herbaceous areas, dominant species are pasture grasses including meadow foxtail (*Alopecurus pratensis*, FAC) and orchardgrass (*Dactylis glomerata*, FACU). Reed canarygrass (*Phalaris arundinacea*, FACW), creeping buttercup (*Ranunculus repens*, FAC), and slough sedge (*Carex obnupta*, OBL) are locally dominant, especially in low-lying areas. Woody riparian species include Oregon ash (*Fraxinus latifolia*, FACW), willow (*Salix* species), and Pacific ninebark (*Physocarpus capitatus*, FACW).

Land use adjacent to the site includes agriculture (including exclusive farm use), industrial, commercial, rural, and single-family residential.

## B. Site Alterations

A sewer line is present within T1N, R3W, Section 33B, Tax Lot 400. It runs from approximately the northern terminus of N. 4<sup>th</sup> Avenue north-northwest towards Council Creek. Topography in the area slopes from south to north towards Council Creek. One man-hole is present along the sewer line in this area. Soils along the sewer line are disturbed and fill gravels and other imported soil materials are present. A small area (estimated at 2,500 square feet) near Council Creek along the sewer line is slightly raised relative to the surrounding landscape, with soils containing angular gravel fill. Due to its location along the sewer line, it is likely that this area of fill is associated with the installation of the utility. It is unclear when the sewer line was installed; however, an aerial photo of this area from 1998 shows that N. 4<sup>th</sup> Avenue was not paved up to the project boundary. It also appears that a potential drainage is present in the location of the sewer line, initiating within Tax Lot 400 (T1N, R3W, Section 33CA). Other air photos suggest the street and sewer line appear to have been constructed/installed by 2003. It is therefore likely that the sewer line and associated fill were placed sometime between 1998 and 2003. However, due to the poor quality of the 1998 photograph, this is uncertain.

No other areas of fill were observed within undeveloped portions of the study area.

## C. Precipitation Data and Analysis

The wetland delineation was conducted on June 6, June 11, June 13, and June 19, 2013. Precipitation on the field visit dates and during the two weeks preceding the field visits is shown in Table 1.

**Table 1: Precipitation recorded during and immediately preceding field visits**

Date of Field Work	Precipitation on Field Date (inches)	Precipitation Previous 2 Weeks (inches)
June 6, 2013	0	2.33*
June 11, 2013	0.06	0.73*
June 13, 2013	0.33	0.53
June 19, 2013	0.03	0.76

\*Recorded precipitation from the Portland weather station was used for June 6 and 11, 2013, as these dates had missing data from the Hillsboro weather station.

Precipitation for the months of May and June totaled 4.34 inches and 1.31 inches, respectively (National Weather Service, Hillsboro). May precipitation is 228% of normal and June precipitation is 90% of normal for the respective periods of record. Precipitation for the water year (October 1, 2012 through June 30, 2013) was 33.67 inches\*, which is 95% of normal.

Table 2 shows the average monthly precipitation in Hillsboro for the three months prior to the site visit, as well as the upper and lower values that are considered within normal ranges for the period of record (NRCS WETS table for Hillsboro, 2002).

**Table 2. Average Monthly Precipitation (NRCS WETS Table)**

Month	Average**	30% chance will have		Observed Precipitation***
		Less than	More than	
March 2013	3.93	2.96	4.59	1.81
April 2013	2.46	1.65	2.94	2.33
May 2013	1.90	1.13	2.30	4.34
June 2013	1.46	0.87	1.78	1.31

\*\*Average Monthly Rainfall (NRCS WETS Table for Hillsboro)

\*\*\*Recorded monthly rainfall (National Weather Service) for Portland, 2013

Precipitation for June was slightly below average, but within a normal range of variation. Recorded precipitation for March 2013 was well below average, but within in normal range. Recorded precipitation for April 2013 was below average but within a normal range. Recorded precipitation in May 2013 was well above average.

The precipitation fluctuations preceding the delineations are not expected to have affected the wetland boundaries because all boundaries within the study area are well defined by topography and/or the presence/absence of hydrologic indicators (i.e. oxidized rhizospheres).

#### **D. Methods**

PHS delineated the limits of the wetlands on the site based on the presence of wetland hydrology, hydric soils, and hydrophytic vegetation, in accordance with the Routine On-site Determination, as described in the *Corps of Engineers Wetland Delineation Manual, Wetlands Research Program Technical Report Y-87-1* ("The 1987 Manual") and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region*. The delineation was conducted on June 6, June 11, June 13, and June 19, 2013.

The entire study area was investigated for the presence of wetlands or other waters. One perennial stream and twelve wetlands were delineated within the study area. In addition, four upland data plots (21, 26, 27, and 28) were recorded in areas with low geomorphic position, unusual vegetation cover patterns, and/or presence of hydrophytic vegetation.

The Ordinary High Water Line (OHWL) of the south bank of Council Creek was determined by signs of high water including water marks, sediment deposits, drift lines, and/or the transition from hydrophytic to drier vegetation. Channel banks were often diffuse, lacking clear signs of ordinary high water, the apparent result of ordinary high water lines that typically exceed bank full flows. In such areas sediment deposits and drift lines were most commonly used, with best professional judgment utilized to ascertain the difference between more recent "ordinary" conditions from evidence of larger historic events.

Wetlands A, B, C, and D are located within agricultural fields planted with grasses. Vegetation and topographic changes are very slight or absent and were not useful in identifying the boundary. Soils are disturbed through recent plow activity and often contained a mixed matrix.

These four wetlands were delineated based primarily on the presence of oxidized rhizospheres (ORs), and, to a lesser extent, the transition from hydric to non-hydric soils. Two paired data plots were deemed sufficient to document the wetland and upland conditions associated with each of these wetlands, though dozens of excavations were made to delineate the boundaries of each of these agriculture wetlands.

Wetland H is located along the southern edge of Tax Lot 400 (of Section 33B). It is found in a low topographic position and was delineated based on changes in vegetation and the presence of ORs. Two paired data points (29 and 30) were deemed sufficient to document the wetland and upland conditions associated with this wetland.

Wetlands E, F, G, I, J, K, and L are associated with Council Creek. A portion of these wetlands may be located within the OHWL of Council Creek. The most common indicators of wetland conditions included the presence of ORs, geomorphic position, dominant wetland vegetation, and hydric soils. Wetlands E and F were documented with four data points each (two sets of paired data points). Wetland G was documented by 8 data points. Data was not collected for Wetland I due to its small size, clear boundary, and similarity to nearby wetlands described in this report. Wetlands J and K were each documented with 1 set of paired data points. Wetland L was documented with 5 data points.

## **E. Description of all Wetlands and Other Non-Wetland Waters**

Within the study area, PHS identified Council Creek and twelve wetlands.

### **Council Creek**

Council Creek is a perennial stream that flows east through the study area and drains to Dairy Creek approximately 2.5 miles east of the site. The Cowardin class is riverine, lower perennial, unconsolidated bottom, permanently flooded (R2UBH) and the HGM class is Riverine. Approximately 4,400 linear feet of OHW was flagged along the southern bank of the two sections of Council Creek within the project area (photographs C, H & I).

Within the study area, Council Creek is low gradient with sluggish flow and often diffuse banks. Beaver (and perhaps nutria) activity was noted during the survey. In the northwestern portion of the site, where more riparian tree species are present, some trees had evidence of recent beaver chew and a dam was present. The southern bank of Council Creek often has a very shallow gradient, but the bank slope is steep in several locations.

Council Creek is not listed as Essential Fish Habitat by the Oregon Department of State Lands, nor does StreamNet show Council Creek as supporting resident or anadromous fish. However, Dairy Creek is mapped as Essential Fish Habitat and supports coho salmon and winter steelhead during rearing and migration.

## **Agricultural Wetlands: A, B, C, and D**

Wetlands A, B, C, and D are located within agricultural fields. Each wetland is located entirely within the project boundary and does not extend off-site. Vegetation is dominated by pasture grasses including tall fescue and perennial ryegrass. Annual bluegrass, bindweed (*Convolvulus* species, NOL), barnyardgrass, pineappleweed (*Matricaria discoidea*, FACU), dandelion (*Taraxacum officinale*, FACU), Queen-Anne's lace (*Daucus carota*, FACU), and rat-tail six-weeks grass (*Vulpia myuros*, FACU) are common sub-dominants. As vegetation is managed within the agricultural fields, there is very little difference between vegetation in the wetland areas and vegetation in the upland areas. The only notable difference is that in some instances vegetation in the upland areas was in a slightly more advanced phenological stage than the same species in the wetland areas at the time of survey. Hydrologic indicators within these wetlands are limited to oxidized rhizospheres (ORs) as no surface water or saturation was present at the time of survey.

### **Wetland A**

Wetland A is located in an agricultural field in the southern half of the site (T 1N, R 3W, Section 33CA, Tax Lot 400). It is approximately 5,446 square feet (0.12 acre) within the study area. The Cowardin class is palustrine, emergent, seasonally flooded/saturated, farmed (PEMEf) and the HGM class is Flats.

Vegetation in and around Wetland A (data points 33 and 34) is planted with tall fescue. Annual bluegrass is also dominant and is present within and between the rows of tall fescue. In addition, barnyardgrass, pineappleweed, and other weedy species are scattered within the wetland and surrounding upland areas.

Soils within Wetland A meet the definition for redox dark surface (F6), and are considered hydric. The upland area surrounding Wetland A has a mixed matrix and does not meet any hydric soil criteria.

### **Wetland B**

Wetland B is located north of Wetland A in an agricultural field in the southern half of the site (T 1N, R 3W, Section 33CA, Tax Lot 400). It is approximately 34,434 square feet (0.79 acre) within the study area. The Cowardin class is PEMEf and the HGM class is Flat.

Vegetation in and around Wetland B (data points 31 and 32) is planted with tall fescue. Annual bluegrass is also dominant and is present within and between the rows of tall fescue. In addition, barnyardgrass, bindweed, and other weedy species are scattered within the wetland and surrounding upland areas.

Soils within Wetland B meet the definition for redox dark surface (F6), and are considered hydric. The upland area surrounding Wetland B was gravelly (10 percent of the matrix) and does not meet any hydric soil criteria.

### Wetland C

Wetland C is located in an agricultural field in the southern half of the site (T 1N, R 3W, Section 33CA, Tax Lot 900). It is approximately 20,559 square feet (0.47 acre) within the study area. The Cowardin class is PEMEf and the HGM class is Flat.

Vegetation in and around Wetland C (data points 37 and 38; photograph K) is planted with tall fescue. Annual bluegrass and perennial ryegrass are also locally dominant and are present within and between the rows of tall fescue. In addition, pineappleweed, dandelion, Queen-Anne's lace, and other weedy species are scattered within the wetland and surrounding upland areas.

Soils within Wetland C meet the definition for redox dark surface (F6), and are considered hydric. The upland area surrounding Wetland C has a mixed matrix and does not meet any hydric soil criteria.

### Wetland D

Wetland D is located east of Wetland C in an agricultural field in the southern half of the site (T1N, R 3W, Section 33CA, Tax Lot 900). It is approximately 15,862 square feet (0.36 acre) within the study area. The Cowardin class is PEMEf and the HGM class is Flat.

Vegetation in and around Wetland D (data points 39 and 40; photograph L) is planted with tall fescue. Annual bluegrass and ryegrass are also locally dominant and present within and between the rows of tall fescue. In addition, pineappleweed, rat-tail six-weeks grass, Queen-Anne's lace, and other weedy species are scattered within the wetland and surrounding upland areas.

Soils within Wetland D meet the definition for redox dark surface (F6), and are considered hydric. The upland area surrounding Wetland D does not meet any hydric soil criteria.

### Wetland H (Isolated)

Wetland H is located in the northern half of the project area (T 1N, R 3W, Section 33B, Tax Lot 400) and is approximately 8,097 square feet (0.19 acre). The Cowardin class is palustrine, emergent, seasonally flooded (PEMC), and the HGM class is Slope. The wetland is located immediately north of the property boundary at the base of a steep slope from the south and two gentle slopes from the east and west. The landscape, from the north end of the wetland, continues to slope down towards Council Creek to the north.

Vegetation within Wetland H and in the adjacent upland (data points 29 and 30; photograph J) is dominated by tall fescue and an unidentified *Poa* species (assumed FAC), with a sub-dominant component of cheatgrass (*Bromus tectorum*, NOL). Reed canarygrass is a common sub-dominant in the wetland area and bedstraw (*Galium aparine*, FACU) is a common sub-dominant in the upland area. Oregon ash and Douglas-fir are in the vicinity of the wetland.

Soils within Wetland H meet the definition for redox dark surface (F6) and are considered hydric. Soils in the upland area do not satisfy any of the hydric soil criteria. The presence of ORs and a low geomorphic position relative to the surrounding landscape indicates wetland hydrology is present within the wetland area. The upland sample location had a similar low geomorphic position (a secondary indicator of wetland hydrology), but lacked other indicators of wetland hydrology. The location of the paired plots for this wetland was selected on the north side because of the common low geomorphic position. Along the eastern and western wetland boundary, upland areas do not have a low geomorphic position.

### **Wetlands Adjacent to Council Creek: E, F, G, I, J, K, L**

These wetlands are all adjacent to the south side of the Council Creek channel. A portion of the boundary of these wetlands is defined by the OHWL of Council Creek.

#### **Wetland E**

Wetland E is located in the northwestern portion of the site (T 1N, R 3W, Section 33B, Tax Lot 400), and is approximately 34,713 square feet (0.80 acre). The Cowardin class is PEMC, and the HGM class is Slope. Wetland E extends west, outside of the study area.

Vegetation within Wetland E (data points 1, and 3; photograph A) consists primarily of tall fescue, meadow foxtail, velvetgrass (*Holcus lanatus*, FAC), and orchardgrass. Reed canarygrass, an unidentified *Poa* species (assumed FAC), and bedstraw are also common in the wetland area. The surrounding upland is dominated by the same species but lacks reed canarygrass. Subdominant vegetation in the upland includes soft brome (*Bromus hordeaceus*, FACU).

Soils within Wetland E are considered hydric as they meet the definition for redox dark surface (F6). One upland sample location meets the depleted matrix (F3) hydric soil indicator. The other upland plot does not meet any of the hydric soil criteria. Oxidized rhizospheres (ORs) and geomorphic position are indicators of wetland hydrology.

#### **Wetland F**

Wetland F is located in the northwestern portion of the site (T 1N, R 3W, Section 33B, Tax Lot 400), east of Wetland E, and is approximately 29,285 square feet (0.67 acre). The Cowardin class is palustrine forested/emergent, seasonally flooded (PFO/EMC), and the HGM class is Slope. Wetland F is located entirely within the study area.

Vegetation within Wetland F (data points 5, and 7; photograph B) consists primarily of Oregon ash, creeping buttercup, an unidentified *Poa* species (assumed FAC), tall fescue, meadow foxtail, and velvetgrass. The upland areas are dominated by Douglas-fir, tall fescue, meadow foxtail, an unidentified *Agrostis* species (assumed FAC), swordfern (*Polystichum munitum*, FACU), and an unidentified *Poa* species (assumed FAC).

Soils within Wetland F are considered hydric as they meet the definition for depleted matrix (F3) or redox dark surface (F6). Upland soils do not meet any of the hydric soil criteria. One upland sample plot contains a mixed matrix. The wetland area has the "geomorphic position" wetland hydrology indicator (secondary). Wetland sample plot 5 also has ORs. Wetland sample plot 7 passes the FAC-neutral test (a secondary indicator of wetland hydrology).

### Wetland G

Wetland G is located in the northern half of the project area (T 1N, R 3W, Section 33B, Tax Lots 300 and 400), and is approximately 58,285 square feet (1.34 acres). The Cowardin class is palustrine forested/scrub-shrub/emergent, seasonally flooded (PFO/SS/EMC), and the HGM class is Slope. Wetland G is located entirely within the study area.

Vegetation within Wetland G (data points 9, 13, 18, 19; photographs D, E and F) consists primarily of Oregon ash, creeping buttercup, an unidentified *Poa* species (assumed FAC), velvetgrass, tall fescue, meadow foxtail, and sharp dock (*Rumex conglomeratus*, FACW). A small community within the larger wetland area, documented by data plot 18, includes Oregon ash, Pacific ninebark, Douglas meadow-sweet (*Spiraea douglasii*, FACW), slough sedge (*Carex obnupta*, OBL), skunk cabbage (*Lysichiton americanus*, OBL), and tall manna grass (*Glyceria elata*, OBL). The upland areas are dominated by Oregon ash, one-seed hawthorn (*Crataegus monogyna*, FAC), snowberry (*Symphoricarpos albus*, FACU), fowl bluegrass (*Poa palustris* FAC), orchardgrass, tall fescue, meadow foxtail, velvetgrass, and an unidentified grass species. Although Himalayan blackberry (*Rubus armeniacus*, FACU) appears as a dominant species in one wetland plot and one upland plot, its overall cover is very small (less than 5 percent).

Soils within Wetland G are considered hydric as they meet the definition for redox dark surface (F6) or had a hydrogen sulfide odor (A4). One upland sample plot (data point 20) has gleyed soils in the upper 12 inches. This sample location is near a sub-surface sewer line and soils are disturbed with gravel fills and other imported/disturbed soil material. Other upland soils do not meet any of the hydric soil criteria. Primary indicators of wetland hydrology including saturation, a high water table, ORs and secondary indicators including geomorphic position and the FAC-neutral test were used to satisfy the wetland hydrology criteria.

### Wetland I

Wetland I is located in the northern half of the project area (T 1N, R 3W, Section 33B, Tax Lot 300), and is approximately 412 square feet (0.01 acre). The Cowardin class is PEMC, and the HGM class is Slope. Wetland I is located entirely within the study area.

Wetland I is dominated by emergent, hydrophytic vegetation and has visible signs of wetland hydrology including drift deposits and water stained leaves. The wetland/non-wetland boundary was determined based on a distinct change in topography and a change in vegetation from hydrophytic to upland species. Due to its small size, clear boundary, and similarity to nearby wetlands, no data was collected for this wetland. However, undocumented soil probes confirmed the absence of hydric soil and wetland hydrology indicators in the upland area surrounding the wetland.

### Wetland J

Wetland J is located in the northern half of the project area (T 1N, R 3W, Section 33B, Tax Lot 300), and is approximately 11,165 square feet (0.26 acre). The Cowardin class is PEMC, and the HGM class is Slope. Wetland J is located entirely within the study area.

Vegetation within Wetland J (data point 17) consists primarily of creeping buttercup and reed canarygrass. The upland areas are dominated by Himalayan blackberry, fowl bluegrass, tall fescue, and velvetgrass.

Soils within Wetland J are considered hydric as they meet the definition for depleted matrix (F3). Upland soils do not meet any of the hydric soil criteria. Geomorphic position and the FAC-neutral test (secondary indicators of wetland hydrology) were used to satisfy the wetland hydrology criteria.

### Wetland K

Wetland K is located in the northern half of the project area (T 1N, R 3W, Section 33B, Tax Lot 300), and is approximately 1,382 square feet (0.03 acre). The Cowardin class is PEMC, and the HGM class is Slope. Wetland K is located entirely within the study area.

Vegetation within Wetland K (data point 15; photograph G) consists primarily of creeping buttercup and reed canarygrass. The upland areas are dominated by Douglas-fir, snowberry, field horsetail (*Equisetum arvense*, FAC), and creeping buttercup. An unidentified bluegrass species and Himalayan blackberry are also common in the upland area surrounding Wetland K.

Soils within Wetland K are considered hydric as they meet the definition for depleted matrix (F3). Upland soils do not meet any of the hydric soil criteria. Both the wetland and upland soil profiles had a mixed matrix. Geomorphic position and the FAC-neutral test (secondary indicators of wetland hydrology) were used to satisfy the wetland hydrology criteria.

### Wetland L

Wetland L is located in the northern half of the project area (T 1N, R 3W, Section 33B, Tax Lot 100 and T 1N, R 3W, Section 33, Tax Lot 200), and is approximately 67,769 square feet (1.56 acres). The Cowardin class is PEMC, and the HGM class is Slope. Wetland L extends south beyond the study area.

Vegetation within Wetland L (data points 23, 25, and 35; photographs H and I) consists primarily of an unidentified *Agrostis* species (assumed FAC), an unidentified *Poa* species (assumed FAC), reed canarygrass, velvetgrass, garden bird's-foot trefoil (*Lotus corniculatus*, FAC), and meadow foxtail. The upland areas are dominated by snowberry, nootka rose (*Rosa nutkana*, FAC), an unidentified *Agrostis* species (assumed FAC), reed canarygrass, meadow foxtail, tall fescue, velvetgrass, and bedstraw. Although snowberry appears as a dominant species in one wetland plot, its overall cover in the wetland is very small (less than 1 percent).

Soils within Wetland L are considered hydric as they meet the definition for redox dark surface (F6). Upland soils do not meet any of the hydric soil criteria. ORs and geomorphic position were indicators of wetland hydrology.

## **F. Deviation from LWI or NWI**

The City of Cornelius's Local Wetland Inventory (LWI) includes the southern portion of the study area. LWI maps are generated through air photo interpretation and "ground truthing" when access is granted. No wetlands are mapped within the study area; however, during the LWI "ground truthing" component, two sample data plots were collected within the study area within or very near PHS's delineated Wetlands A and C. One sample is located in T 1N, R 3W, Section 33CA, Tax Lot 400, the other is in T 1N, R 3W, Section 33CA, Tax Lot 900. Agricultural wetlands like those mapped by PHS in these tax lots are difficult to determine because vegetation is highly managed, soils are often disturbed, and hydrology may be affected by current and/or historic drainage tiles or ditches. It is important to delineate agricultural wetlands during the early growing season to maximize the potential to identify signs of wetland hydrology. The difficult nature of agricultural wetland delineation and/or the time of LWI field survey are possible reasons for the discrepancy with PHS's findings.

The NWI maps a palustrine, emergent, seasonally flooded (PEMC) wetland adjacent to Council Creek in the location of Wetland L. The NWI did not map any other wetlands within the project area.

## **G. Mapping Method**

PHS flagged the limits of the OHWL and wetlands within the study area with blue tape flagging and/or blue pin flags. Northwest Survey then performed a professional land survey of the delineated boundaries. The accuracy of the survey and data points is sub-centimeter, with the exception of data points 19, 21, 26, 27, 28, 35 and 36, which were not surveyed. These points were placed on the wetland delineation map using field notes; their accuracy is +/- 3 feet.

## **H. Additional Information**

Council Creek is not listed as Essential Fish Habitat by the Oregon Department of State Lands, nor does StreamNet show Council Creek as supporting resident or anadromous fish. However, Dairy Creek is both Essential Fish Habitat and supports coho salmon and winter steelhead during rearing and migration.

## **I. Results and Conclusions**

PHS delineated the OHWL of the southern bank of one perennial stream and twelve wetlands within the study area. The total length of the OHWL is 4,400 feet. The total area of wetlands within the study area boundary is 287,409 square feet (6.60 acres), as summarized in the following table.

**Table 3. Total wetland and other waters within the study area**

<b>Water Feature</b>	<b>Length (linear feet)</b>	<b>Cowardin Class</b>	<b>HGM Class</b>
Council Creek	4,400	R2UBH	Riverine
<b>Wetland Feature</b>	<b>Area (square feet)</b>	<b>Cowardin Class</b>	<b>HGM Class</b>
Wetland A	5,446	PEMEf	Flats
Wetland B	34,434	PEMEf	Flats
Wetland C	20,559	PEMEf	Flats
Wetland D	15,862	PEMEf	Flats
Wetland E	34,713	PEMC	Slope
Wetland F	29,285	PFO/EMC	Slope
Wetland G	58,285	PFO/SS/EMC	Slope
Wetland H	8,097	PEMC	Slope
Wetland I	412	PEMC	Slope
Wetland J	11,165	PEMC	Slope
Wetland K	1,382	PEMC	Slope
Wetland L	67,769	PEMC	Slope
<b>Total Wetland Area</b>	<b>287,409 (6.60 acres)</b>		

**J. Required Disclaimer**

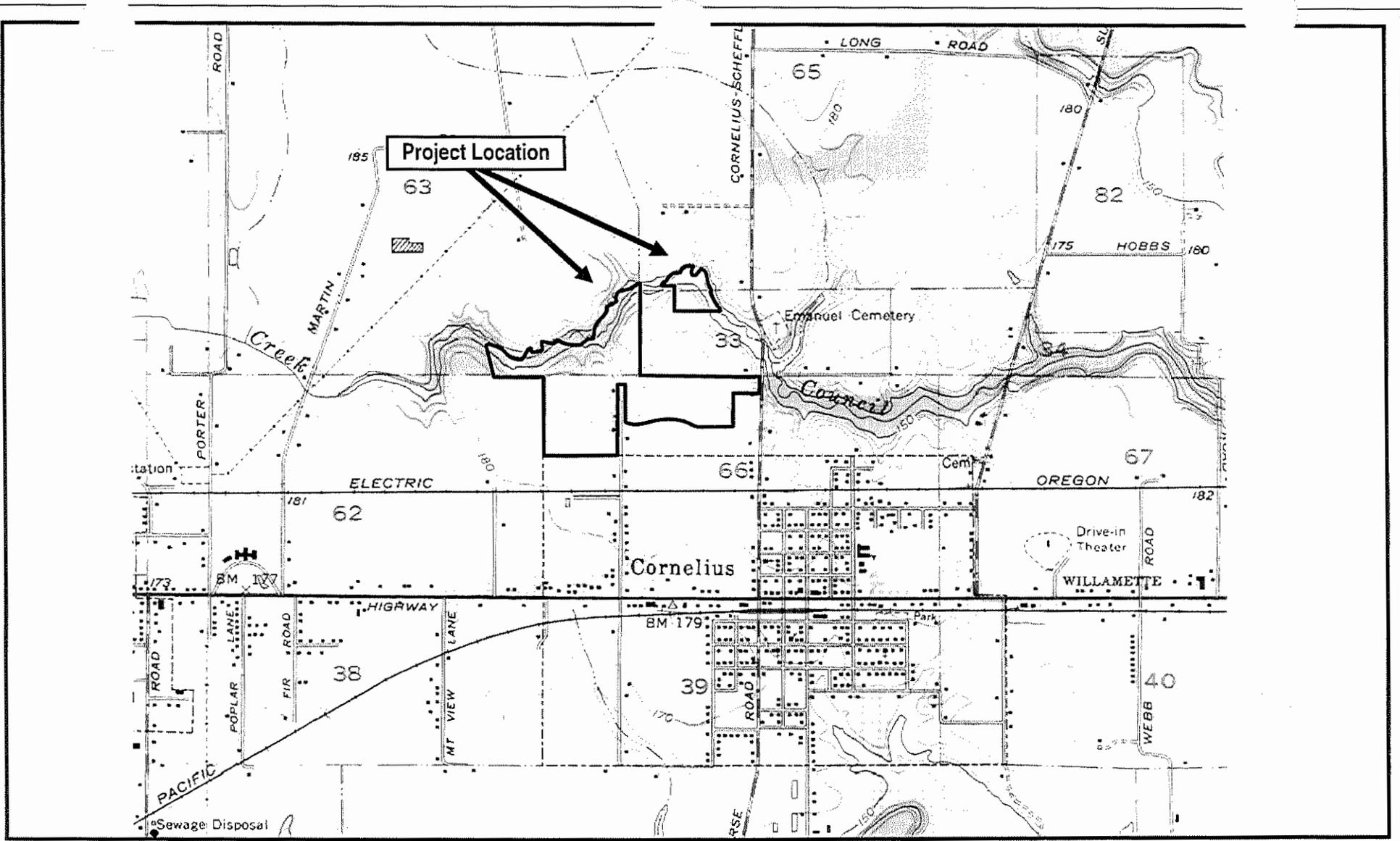
This report documents the investigation, best professional judgment and conclusions of the investigators. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been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

### III. REFERENCES

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# Appendix A

## Figures



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Pacific Habitat Services, Inc.  
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Topography and General Location for North Holladay Industrial Park  
(USGS Forest Grove, OR Quadrangle, 1956)

FIGURE  
1

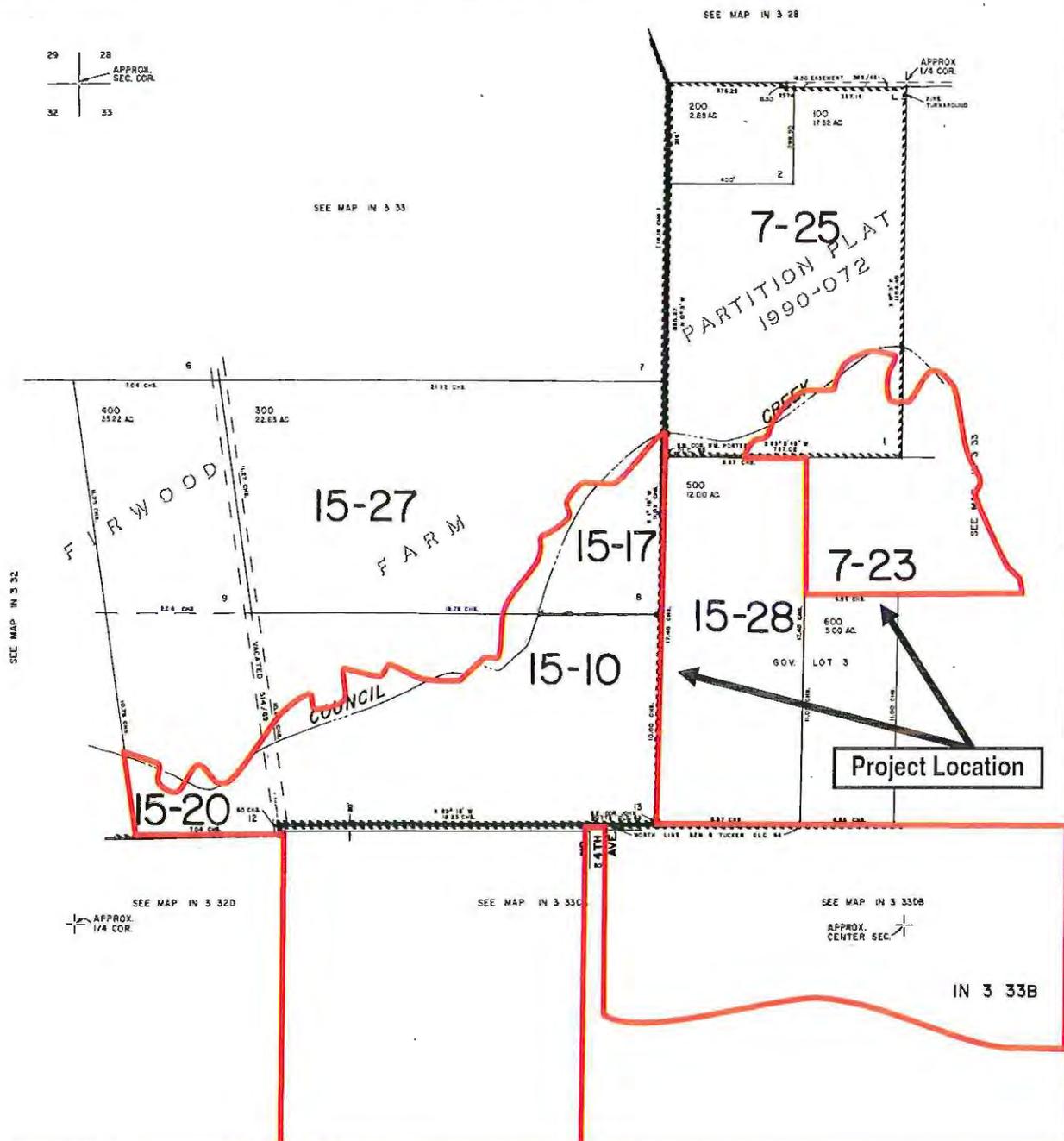


FOR ASSESSMENT PURPOSES ONLY. DO NOT RELY ON FOR ANY OTHER USE.

NW 1/4 SECTION 33 T1N R3W WM.  
WASHINGTON COUNTY

IN 3 33B

SCALE 1" = 200'



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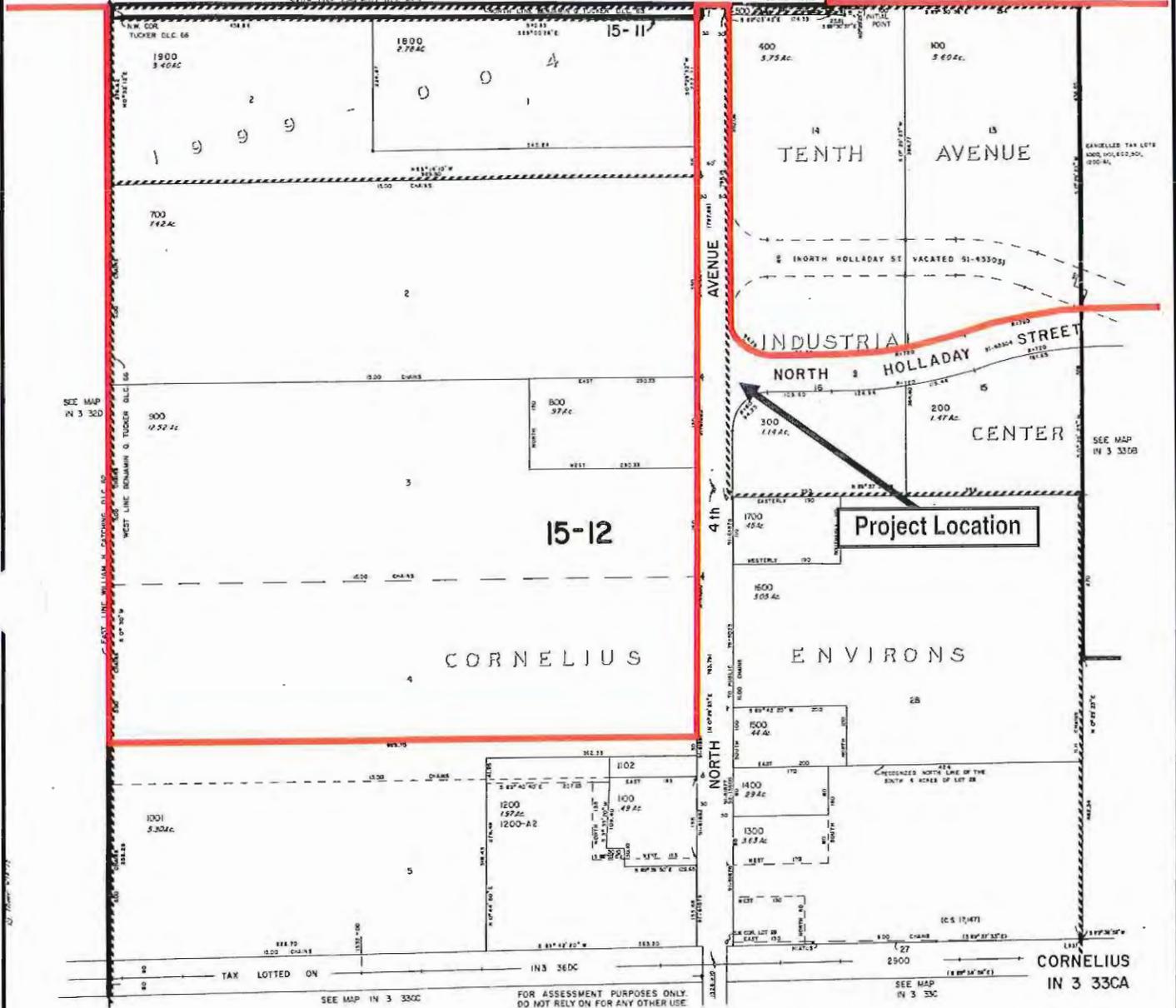
Tax lot map for North Holladay Industrial Park  
Tax lot map 1N 3 33B, portions of tax lots 100, 300 and 400  
(ormap.net, 1991)

FIGURE  
2A

NE 1/4 SW 1/4 SECTION 33 TIN R3W W.M.

IN 3 33CA

SEE MAP IN 3 33B  
WASHINGTON COUNTY OREGON  
SCALE 1" = 100'



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Tax lot map for North Holladay Industrial Park  
Tax lot map 1N 3 33CA, tax lots 100, 400, 700, 800, 900, 1800 and 1900  
(ormap.net, 1974)

FIGURE  
2B

NW 1/4 SE 1/4 SECTION 33 TIN R3W W.M.

IN 3 33DB

WASHINGTON COUNTY OREGON  
SCALE 1" = 100'

SEE MAP  
IN 3 33

SPIESSCHAERT  
ROAD

DESCRIPTION  
C OF CR ON D.L.C. LINE  
185 FT. W. E. OF N. 10th AVE.  
C.R. MAP 145 SHOWS  
5' N. OF NORTH OF E.L.D. LINE  
185 FT. ON THE EAST LINE OF  
N. 10th AVE.

CANCELLED T.L.  
800  
900  
1400  
1500  
1800  
1900  
200  
200  
1200

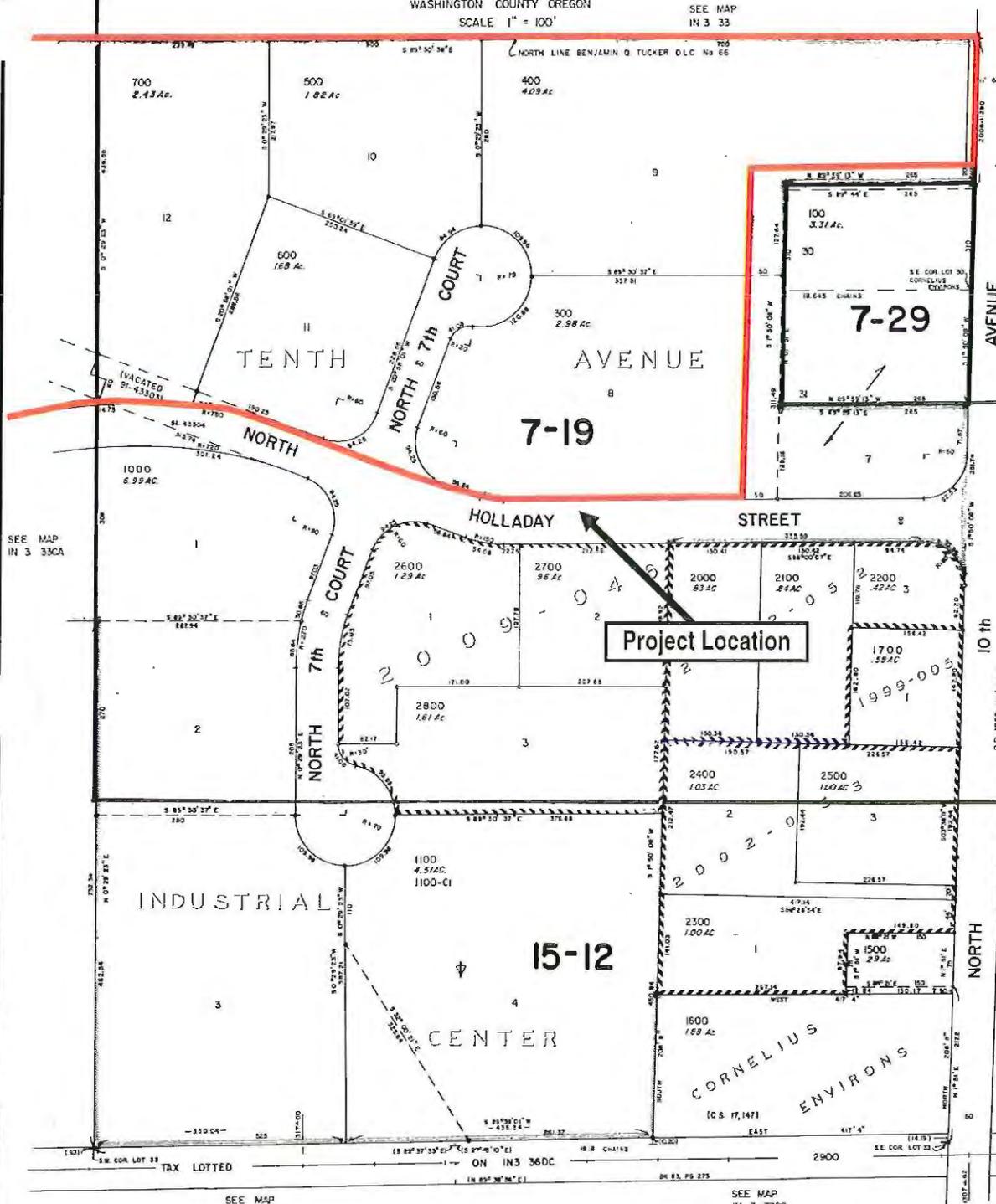
PRIVATE  
STREET

SEE MAP  
IN 3 330A

FOR ASSESSMENT  
PURPOSES ONLY  
DO NOT RELY ON  
FOR ANY OTHER USE

PRIVATE  
STREET

CORNELIUS  
IN 3 33DB



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Tax lot map for North Holladay Industrial Park  
Tax lot map 1N 3 33DB, tax lots 300, 400, 500, 600 and 700 (ormap.net, 1979)

FIGURE  
2C

City of Cornelius



Local Wetlands Inventory



T1S R3W Sec. 03 T1S R3W Sec. 04  
T1N R3W Sec. 33 T1N R3W Sec. 34

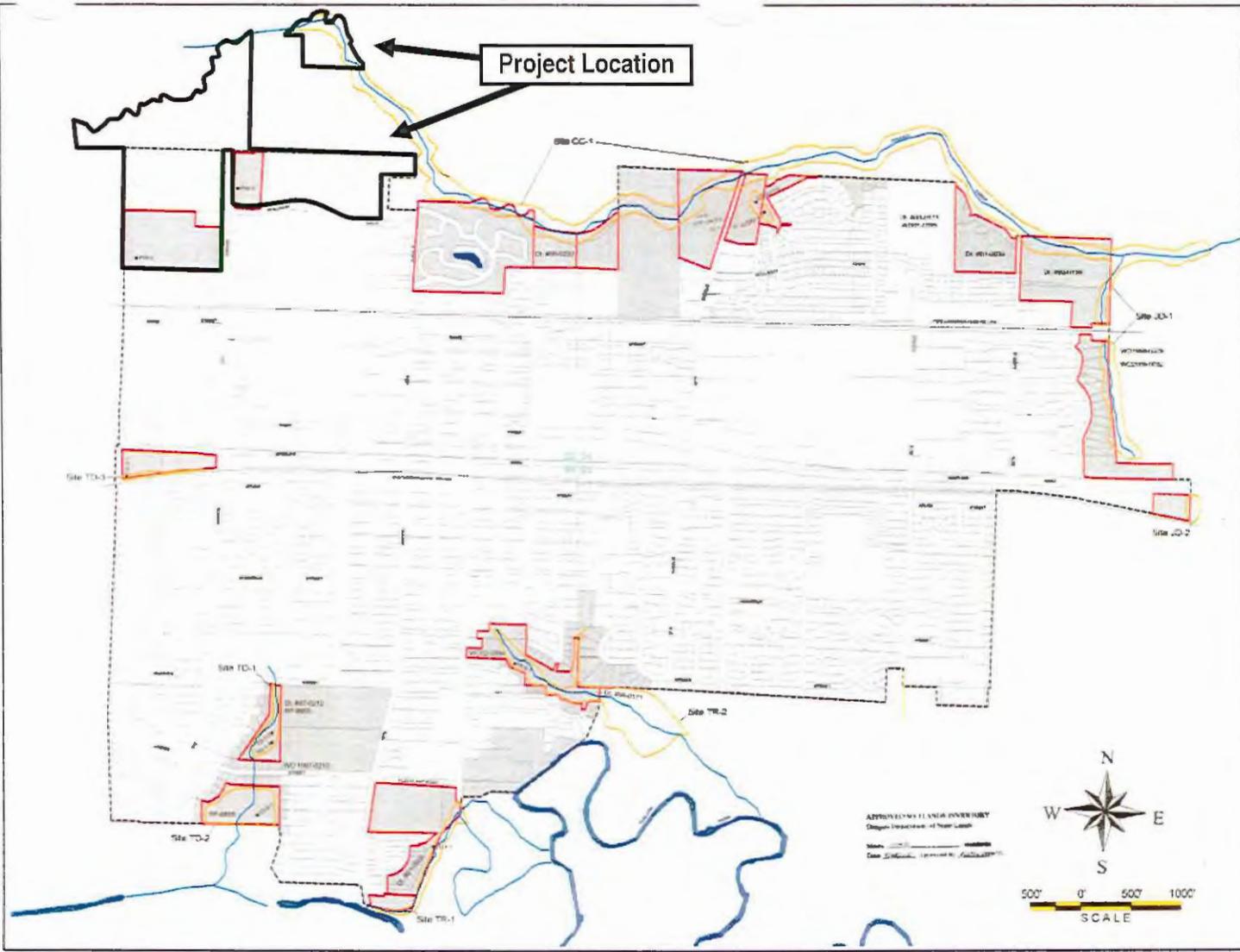
L-E-G-E-N-D

- Sample Plot
- ~ Stream
- Drainage Ditch
- Wetland
- Field Verified
- Adjacent Lots/Parcels
- Tax Lots
- Rail Roads
- Map Section Line
- Cornelius City Limits as Study Area

Information shown on this map is for planning purposes only. Wetland information is subject to change. There may be unmapped wetlands within this study area subject to re-evaluation. All depicted wetland boundaries are approximate and in all circumstances, only actual field conditions determine exact wetland boundaries. You are advised to contact the Oregon Division of State Lands, and U.S. Army Corps of Engineers with any regulatory questions. Source: City of Cornelius, DGL and MNR RLS 3/9/08 2008

Information Current as of: **March 2003**

Project Location



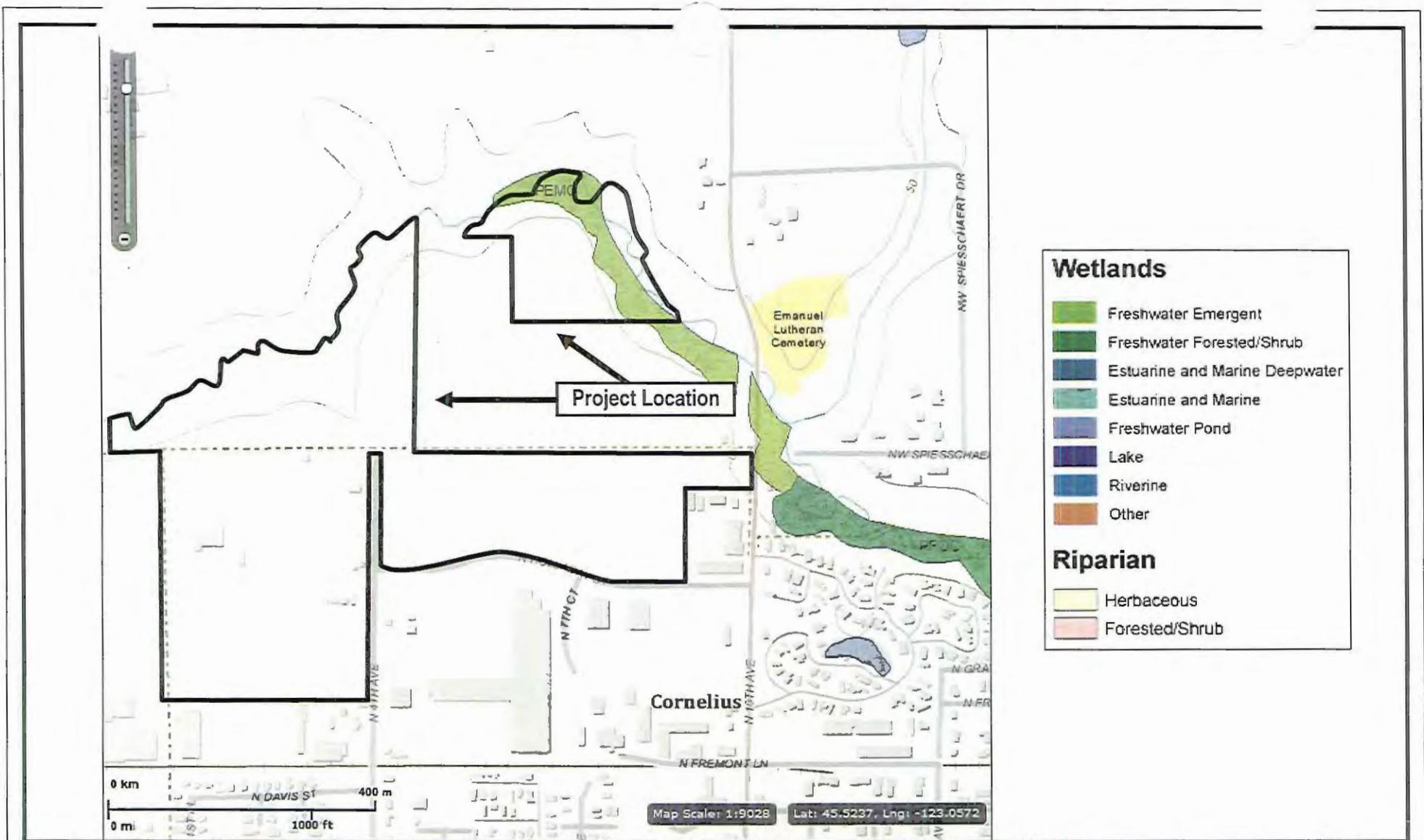
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7/18/13



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Local Wetlands Inventory map for North Holladay Industrial Park  
(Oregon Department of State Lands, 2008)

FIGURE  
**3A**



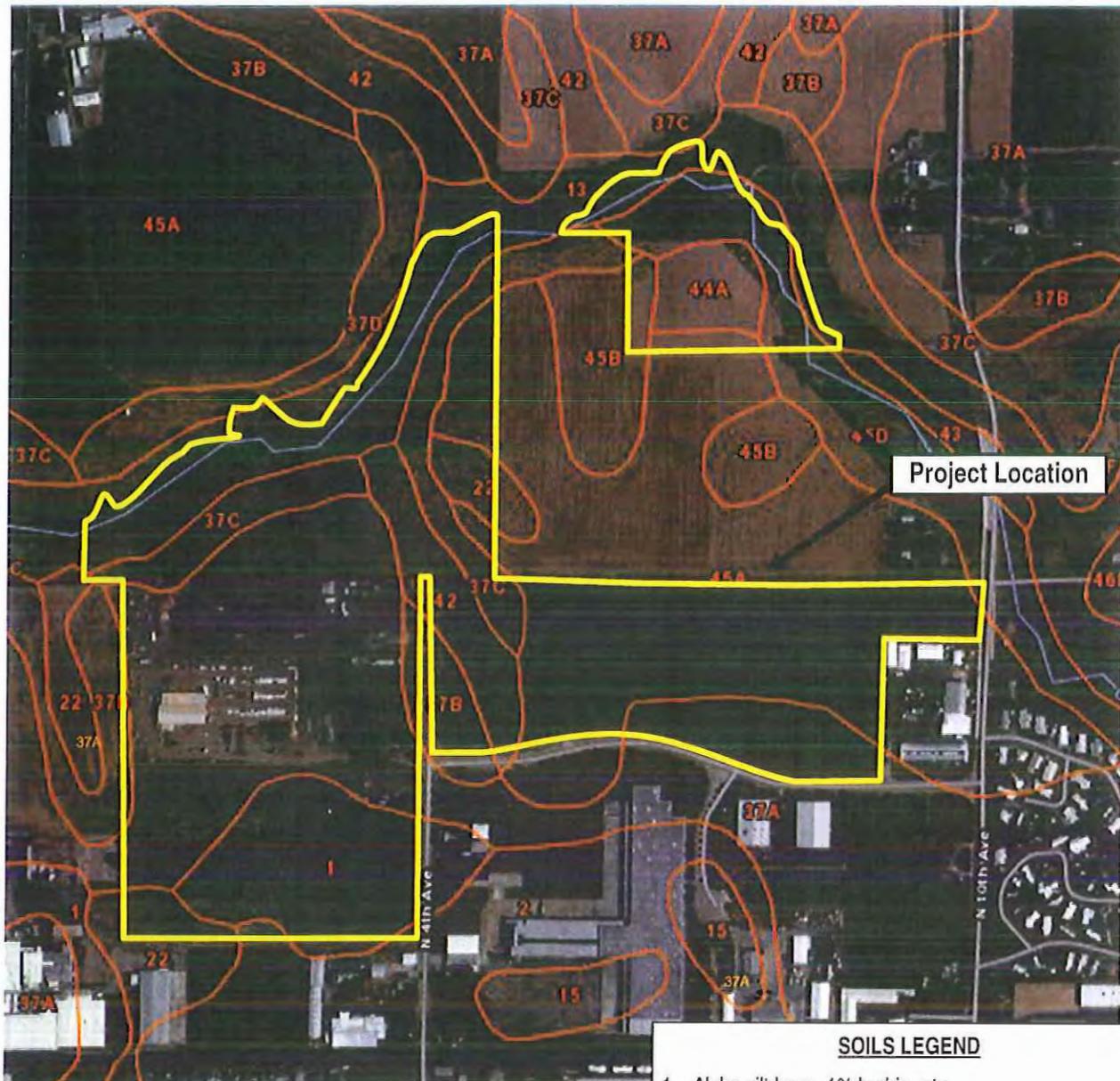
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7/17/13



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National Wetlands Inventory map for North Holladay Industrial Park  
(USFWS Wetlands Mapper, 2013)

FIGURE  
3B



Project Location

**SOILS LEGEND**

- 1 – Aloha silt loam, 1% hydric rate
- 2 – Amity silt loam, 4% hydric rate
- 13 – Cove silty clay loam, 100% hydric rate
- 22 – Huberly silt loam, 93% hydric rate
- 37A Quatama loam, 0-3% slopes, 4% hydric rate
- 37B – Quatama loam, 3-7% slopes, 4% hydric rate
- 37C – Quatama loam, 7-12% slopes, 4% hydric rate
- 42 – Verboort silty clay loam, 100% hydric rate
- 44A – Willamette silt loam, 0-3% slopes, 3% hydric rate
- 45A – Woodburn silt loam, 0-3% slopes, 1% hydric rate
- 45B – Woodburn silt loam, 3-7% slopes, 1% hydric rate
- 45D – Woodburn silt loam, 12-20% slopes, 1% hydric rate

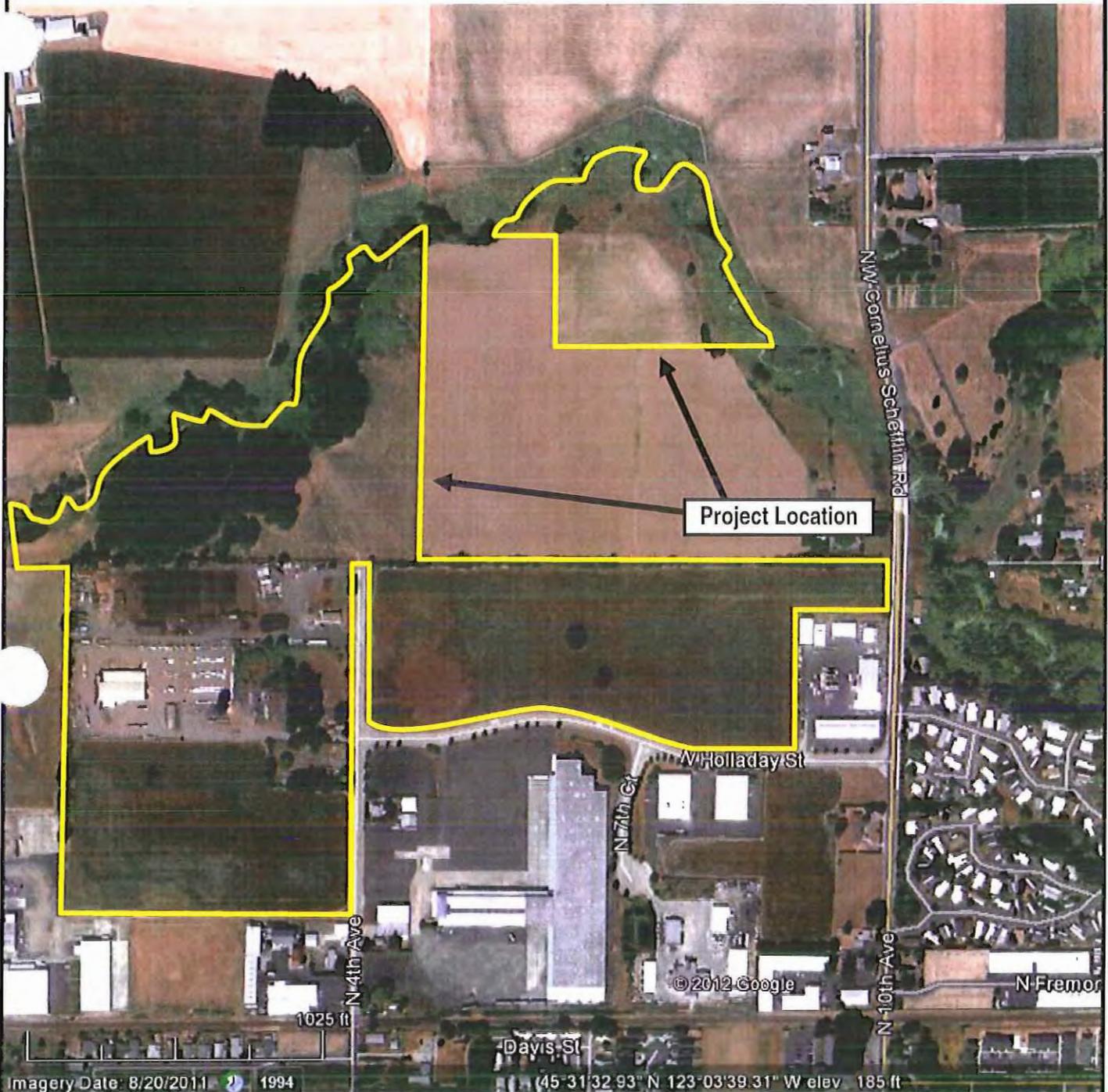
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Soils map for North Holladay Industrial Park  
(NRCS Web Soil Survey, 2013)

FIGURE  
4



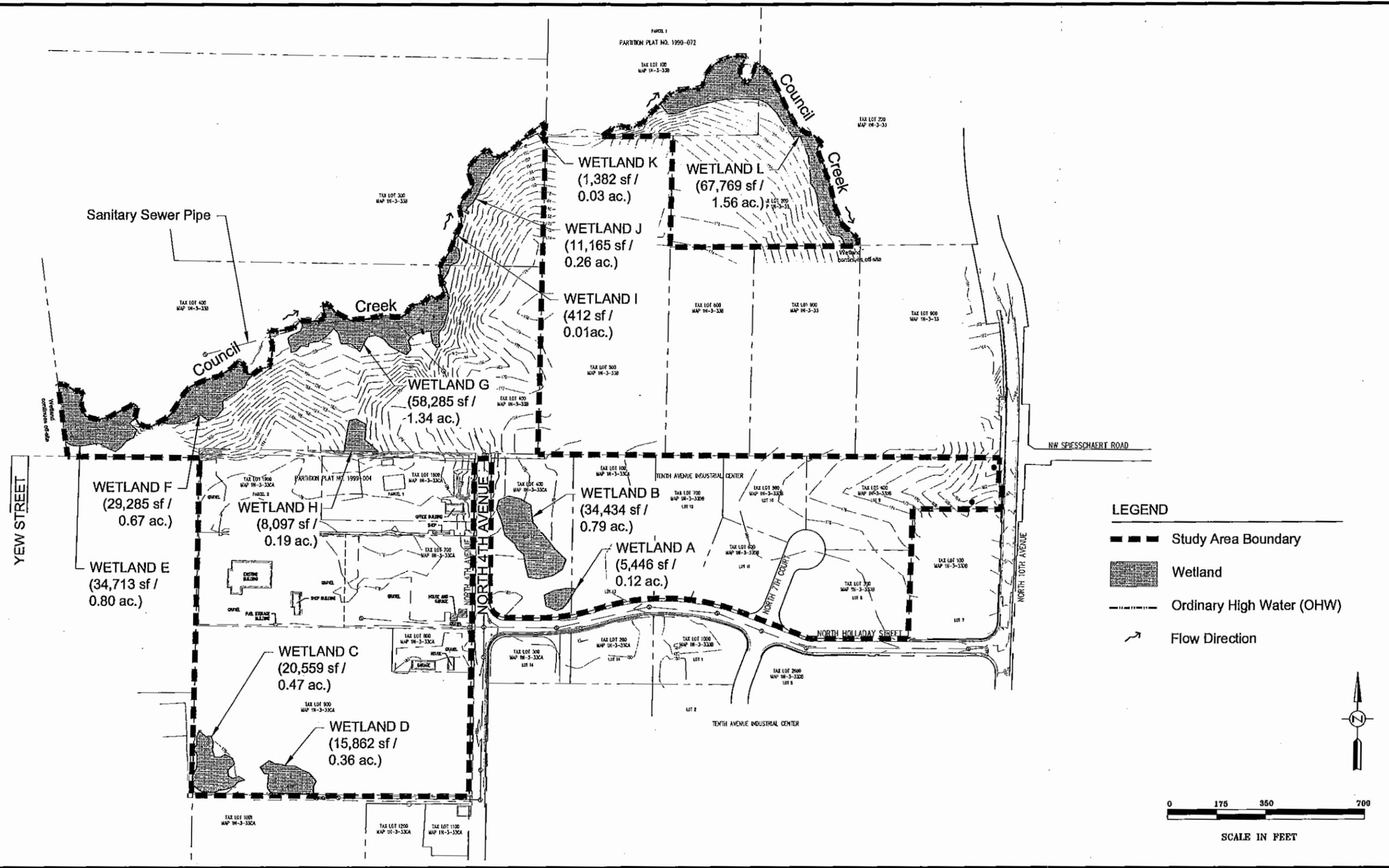
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7/17/13



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Recent aerial photo for North Holladay Industrial Park  
(Google Earth, 2011)

FIGURE  
5

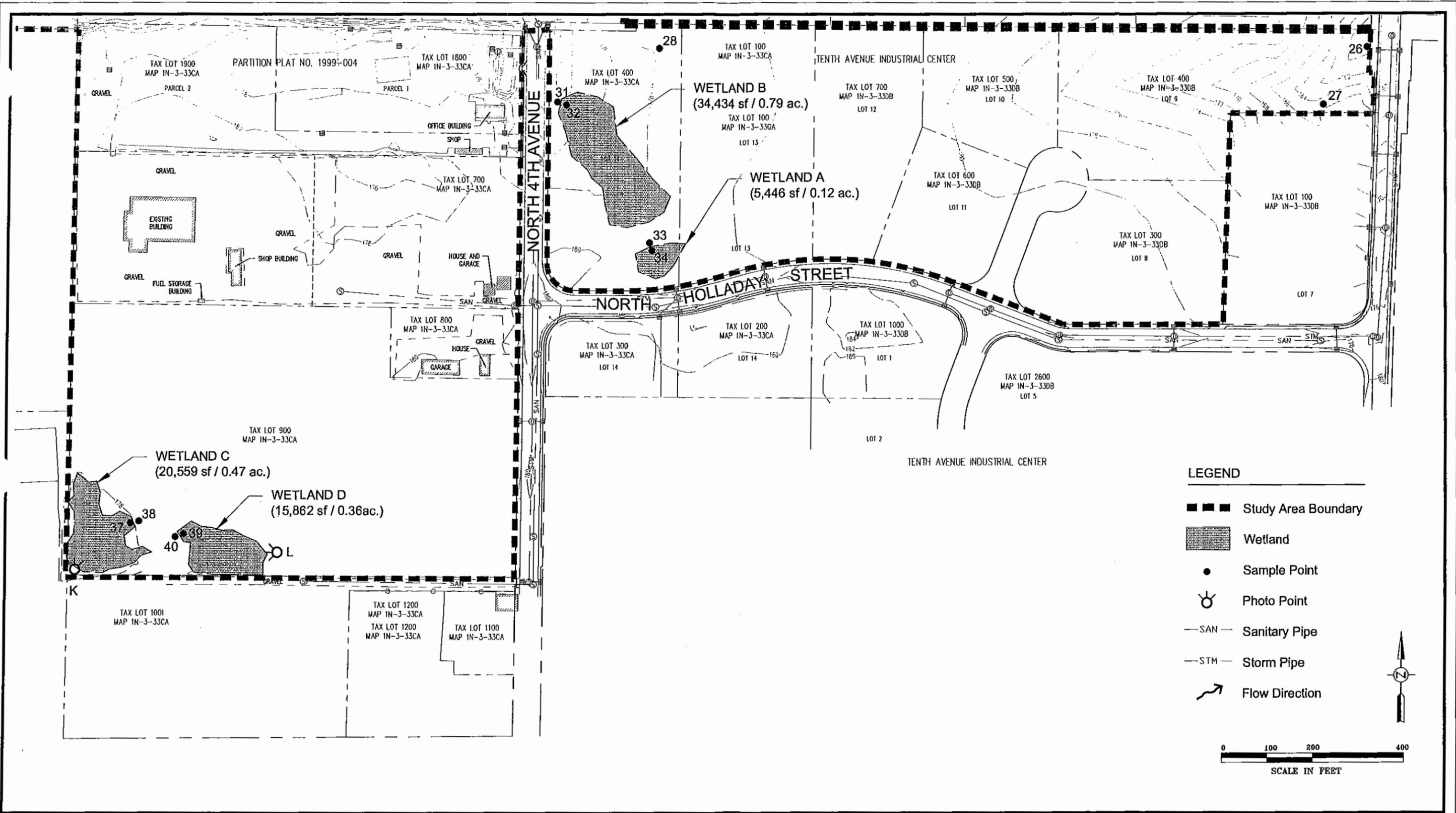


Survey provided by Northwest Surveying.  
Survey accuracy is sub-centimeter.

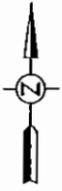
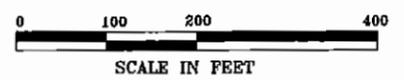
Wetland Delineation Overall Study Area  
North Holladay Industrial Park

**FIGURE 6**

07-17-13



- LEGEND**
- ■ ■ Study Area Boundary
  - ▨ Wetland
  - Sample Point
  - ⊙ Photo Point
  - SAN— Sanitary Pipe
  - STM— Storm Pipe
  - ↗ Flow Direction



Survey provided by Northwest Surveying.  
Survey and Sample point accuracy is sub-centimeter;  
Accuracy for sample points 26, 27 and 28 is +/- 3 feet.

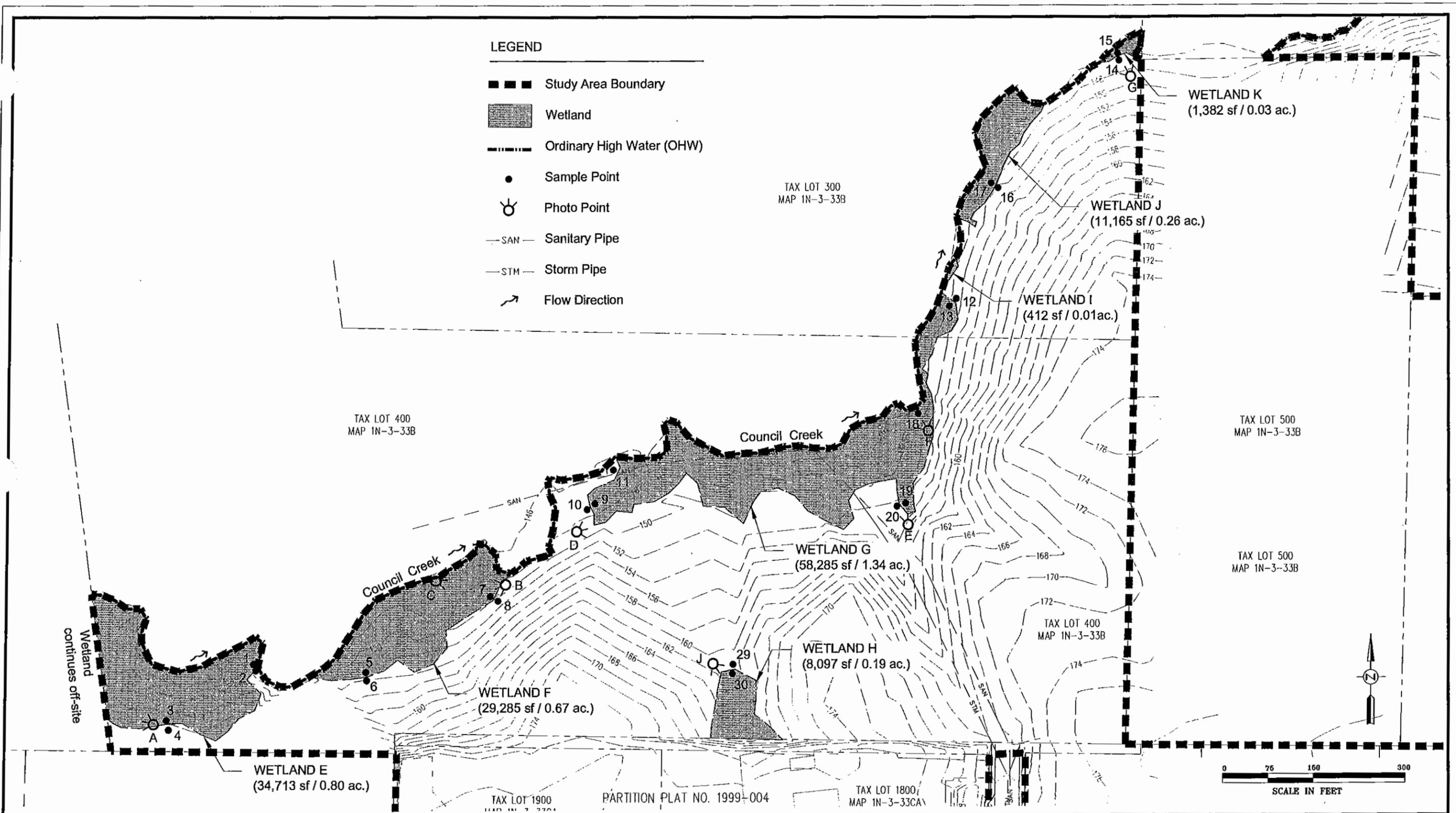
Wetland Delineation  
North Holladay Industrial Park

FIGURE  
**6A**

07-17-13

**LEGEND**

- ■ ■ Study Area Boundary
- ▨ Wetland
- - - Ordinary High Water (OHW)
- Sample Point
- ⊙ Photo Point
- SAN - Sanitary Pipe
- STM - Storm Pipe
- ↗ Flow Direction

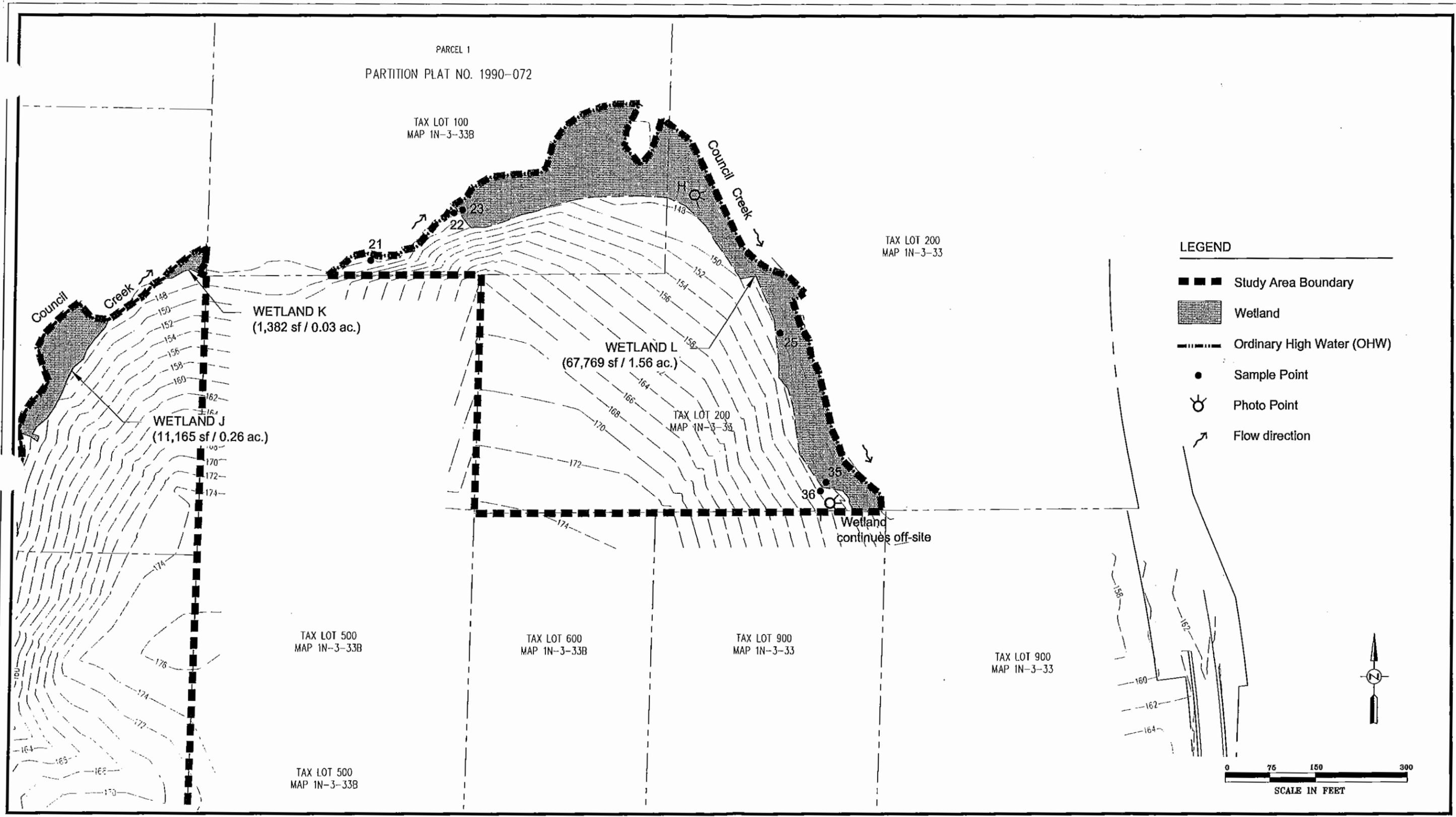


Survey provided by Northwest Surveying.  
 Survey and Sample point accuracy is  
 sub-centimeter. Accuracy for sample point 19  
 is +/- 3 feet.

Wetland Delineation  
 North Holladay Industrial Park; Cornelius, Oregon

**FIGURE 6B**

07-17-13



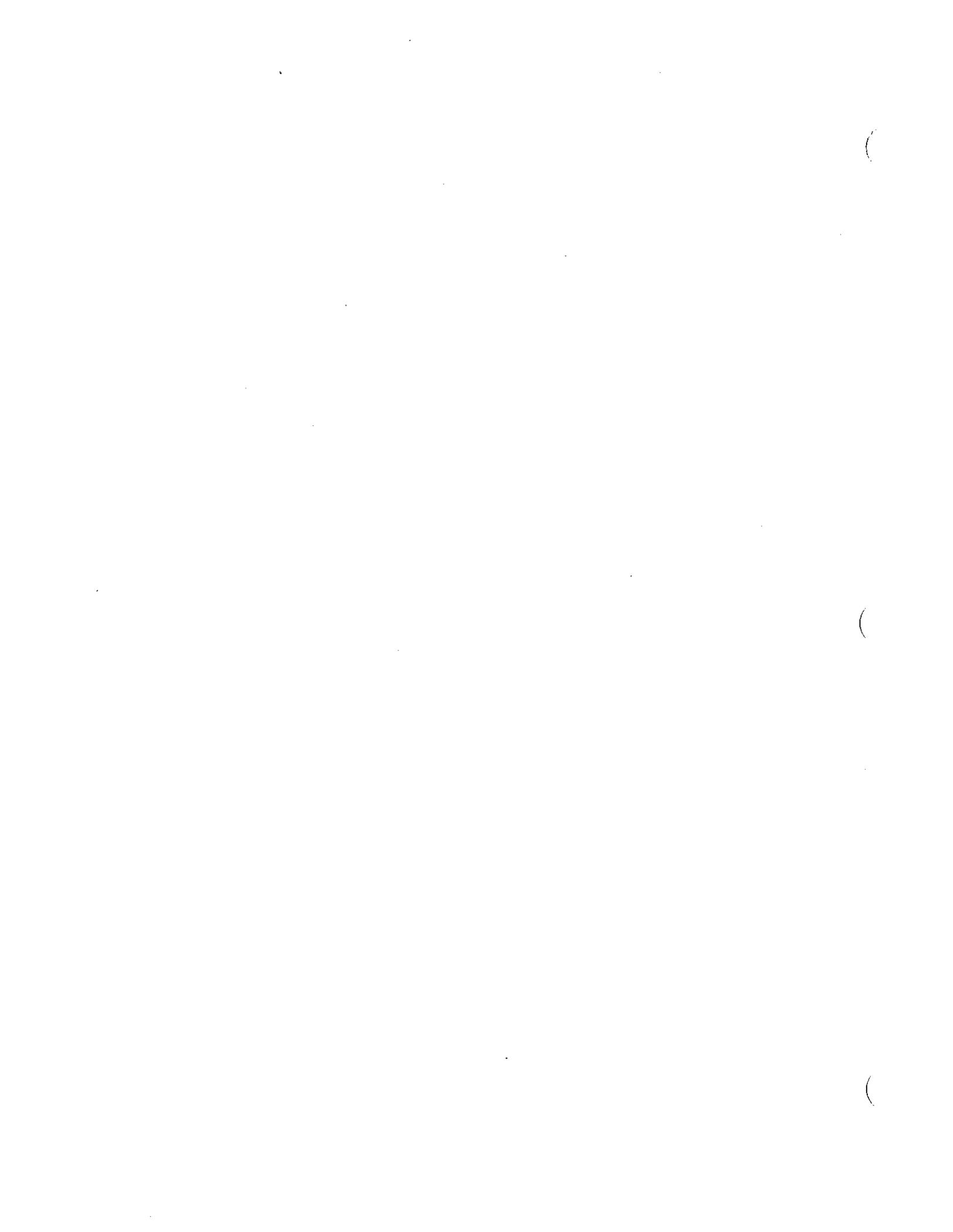
Survey provided by Northwest Surveying.  
Survey and Sample point accuracy is  
sub-centimeter. Accuracy for sample points  
21, 35 and 36 is +/- 3 feet.

Wetland Delineation  
North Holladay Industrial Park

FIGURE  
6C

# **Appendix B**

## **Wetland Determination Data Sheets**



**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/11/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 1  
 Investigator(s): TF/AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Elevation (hill/slope, terrace, etc.): Slope Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

**VEGETATION - Use scientific names of plants.**

Tree Stratum (plot size: _____)	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 _____	_____	_____	_____	Number of Dominant Species	
2 _____	_____	_____	_____	That are OBL, FACW, or FAC: <u>2</u> (A)	
3 _____	_____	_____	_____	Total Number of Dominant	
4 _____	_____	_____	_____	Species Across All Strata: <u>2</u> (B)	
	<u>0</u>	= Total Cover		Percent of Dominant Species	
g/Shrub Stratum (plot size: _____)	_____	_____	_____	That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2 _____	_____	_____	_____	Prevalence Index Worksheet:	
3 _____	_____	_____	_____	Total % Cover of _____ Multiply by:	
4 _____	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
5 _____	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
	<u>0</u>	= Total Cover		FAC Species _____ x 3 = <u>0</u>	
Herb Stratum (plot size: <u>5</u> )	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
1 <u>Alopecurus pratensis</u>	<u>50</u>	<u>X</u>	<u>FAC</u>	UPL Species _____ x 5 = <u>0</u>	
2 <u>Festuca arundinacea</u>	<u>30</u>	<u>X</u>	<u>FAC</u>	Column Totals <u>0</u> (A) <u>0</u> (B)	
3 <u>Poa pratensis</u>	<u>10</u>	_____	<u>FAC</u>	Prevalence Index = B/A = <u>#DIV/0!</u>	
4 <u>Phalaris arundinacea</u>	<u>10</u>	_____	<u>FACW</u>	Hydrophytic Vegetation Indicators:	
5 _____	_____	_____	_____	1- Rapid Test for Hydrophytic Vegetation	
6 _____	_____	_____	_____	<u>X</u> 2- Dominance Test is >50%	
7 _____	_____	_____	_____	3- Prevalence Index is ≤ 3.0 <sup>1</sup>	
8 _____	_____	_____	_____	4- Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
	<u>100</u>	= Total Cover		5- Wetland Non-Vascular Plants <sup>1</sup>	
Woody Vine Stratum (plot size: _____)	_____	_____	_____	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
1 _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2 _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
	<u>0</u>	= Total Cover			
a Ground In Herb Stratum	<u>0</u>				

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR 3/2	92	5YR 3/4	5	C	M	Silt Loam	Fine
0-5			5YR 3/4	3	C	PL	Silt Loam	OR's
5-16	10YR 3/1	98	7.5YR 3/4	2	C	M	Silt Loam	No OR's, fine

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B8)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B6)

- Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >16  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): >16

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/11/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 2  
 Investigator(s): AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>3</u> (A)	
2	_____	_____	_____	Total Number of Dominant	
3	_____	_____	_____	Species Across All Strata: <u>3</u> (B)	
4	_____	_____	_____	Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
<b>Eng/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
1	_____	_____	_____	Total % Cover of _____ Multiply by:	
2	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
3	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
4	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
5	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
				Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index = B/A = <u>#DIV/0!</u>	
1	<u>40</u>	<u>X</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2	<u>40</u>	<u>X</u>	<u>FAC</u>	1- Rapid Test for Hydrophytic Vegetation	
3	<u>30</u>	<u>X</u>	<u>FAC</u>	<u>X</u> 2- Dominance Test is >50%	
4	_____	_____	_____	3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5	_____	_____	_____	4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6	_____	_____	_____	5- Wetland Non-Vascular Plants <sup>1</sup>	
7	_____	_____	_____	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
	<u>110</u>	= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
<b>Woody Vine Stratum</b> (plot size: _____)					
1	_____	_____	_____		
2	_____	_____	_____		
	<u>0</u>	= Total Cover			
Bare Ground in Herb Stratum <u>0</u>					

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	10YR 3/2	99	10YR 3/4	1	C	M	Silty Clay Loam	Fine
7-16	10YR 3/1	100					Silty Clay Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): >16  
 Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/11/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 3  
 Investigator(s): AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1				That are OBL, FACW, or FAC: <u>2</u> (A)	
2				Total Number of Dominant	
3				Species Across All Strata: <u>2</u> (B)	
4				Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
<b>Log/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
2				Total % Cover of _____ Multiply by: _____	
3				OBL Species _____ x 1 = <u>0</u>	
4				FACW species _____ x 2 = <u>0</u>	
5				FAC Species _____ x 3 = <u>0</u>	
	<u>0</u>	= Total Cover		FACU Species _____ x 4 = <u>0</u>	
				UPL Species _____ x 5 = <u>0</u>	
				Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index = B/A = <u>#DIV/0!</u>	
1	<u>Festuca arundinacea</u> 50	<u>X</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2	<u>Alopecurus pratensis</u> 25	<u>X</u>	<u>FAC</u>	1- Rapid Test for Hydrophytic Vegetation	
3	<u>Dactylis glomerata</u> 20		<u>FACU</u>	<u>X</u> 2- Dominance Test is >50%	
4	<u>Holcus lanatus</u> 20		<u>FAC</u>	3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5	<u>Gallium aparine</u> 15		<u>FACU</u>	4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6				5- Wetland Non-Vascular Plants <sup>1</sup>	
7				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
	<u>130</u>	= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
<b>Woody Vine Stratum</b> (plot size: _____)					
1					
2					
	<u>0</u>	= Total Cover			
are Ground in Herb Stratum <u>0</u>					

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (molst)	%	Color (molst)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 3/2	40	10YR 3/5	5	C	PL	Silty Clay Loam	mixed matrix
0-6	10YR 3/3	55					Silty Clay Loam	mixed matrix
6-16	10YR 4/2	90	10YR 3/6	10	C	M	Silty Clay Loam	Medium

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S8)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (2 or more required)

<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >16  
 Saturation Present? Yes  No  Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 4/2	90	10YR 4/3	10	C	M	Silt Loam	Medium

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks: \_\_\_\_\_

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Fac-Neutral Test (D5)
	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
	<input type="checkbox"/> Frost-Heave Hummocks (D7)

**Field Observations:**  
 Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): >16  
 Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

Describe Recorded Date (stream gauge, monitoring well, aerial photos, previous inspections), if available: \_\_\_\_\_

Remarks: No OR's, no geomorphic position upslope from boundary.

**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

Project/Site: North Holladay Industrial Park City/County: Cornellus/Washington Sampling Date: 6/11/2013  
 Applicant/Owner: City of Cornellus State: OR Sampling Point: 5  
 Investigator(s): AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A)	
1	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
2	_____	_____	_____	Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
3	_____	_____	_____	<b>Prevalence Index Worksheet:</b>	
4	_____	_____	_____	Total % Cover of _____ Multiply by:	
5	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
	<u>0</u>	= Total Cover		FACW species _____ x 2 = <u>0</u>	
<b>Log/Shrub Stratum</b> (plot size: _____)				FAC Species _____ x 3 = <u>0</u>	
1	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
2	_____	_____	_____	UPL Species _____ x 5 = <u>0</u>	
3	_____	_____	_____	Column Totals <u>0</u> (A) <u>0</u> (B)	
4	_____	_____	_____	Prevalence Index = B/A = <u>#DIV/0!</u>	
5	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b>	
6	_____	_____	_____	1- Rapid Test for Hydrophytic Vegetation	
7	_____	_____	_____	<u>X</u> 2- Dominance Test is >50%	
8	_____	_____	_____	3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
	<u>115</u>	= Total Cover		4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				5- Wetland Non-Vascular Plants <sup>1</sup>	
1	_____	_____	_____	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
2	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
	<u>0</u>	= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
<b>Woody Vine Stratum</b> (plot size: _____)					
1	_____	_____	_____		
2	_____	_____	_____		
	<u>0</u>	= Total Cover			
are Ground In Herb Stratum <u>0</u>					
Remarks:					

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	10YR 3/2	82	10YR 4/6	10	C	M	Silt Loam	Fine-medium
0-9			10YR 2/1	5				Black concretions
0-9			10YR 4/6	3	C	PL		OR's
9-16	10YR 4/1	75	10YR 3/6	25	C	M	Silty Clay Loam	Medium

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction In Plowed Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >16  
 Saturation Present? Yes  No  Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present?  
 Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/11/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 6  
 Investigator(s): AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

VEGETATION - Use scientific names of plants.

Tree Stratum (plot size: _____)	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 _____	_____	_____	_____	Number of Dominant Species That are OBL, FACW, or FAC:	<u>3</u> (A)
2 _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species That are OBL, FACW, or FAC:	<u>100%</u> (A/B)
4 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
Woody/Shrub Stratum (plot size: _____)				Prevalence Index Worksheet:	
1 _____	_____	_____	_____	Total % Cover of	Multiply by:
2 _____	_____	_____	_____	OBL Species	x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species	x 2 = <u>0</u>
4 _____	_____	_____	_____	FAC Species	x 3 = <u>0</u>
5 _____	_____	_____	_____	FACU Species	x 4 = <u>0</u>
	<u>0</u>	= Total Cover		UPL Species	x 5 = <u>0</u>
Herb Stratum (plot size: <u>5</u> )				Column Totals	<u>0</u> (A) <u>0</u> (B)
1 <u>Festuca arundinacea</u>	<u>40</u>	<u>X</u>	<u>FAC</u>	Prevalence Index = B/A = <u>#DIV/0!</u>	
2 <u>Alopecurus pratensis</u>	<u>40</u>	<u>X</u>	<u>FAC</u>		
3 <u>Agrostis sp.</u>	<u>30</u>	<u>X</u>	<u>(FAC)</u>		
4 <u>Cirsium arvense</u>	<u>20</u>	_____	<u>FAC</u>		
5 _____	_____	_____	_____		
6 _____	_____	_____	_____		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
	<u>130</u>	= Total Cover			
Woody/Vine Stratum (plot size: _____)				Hydrophytic Vegetation Indicators:	
1 _____	_____	_____	_____	1- Rapid Test for Hydrophytic Vegetation	
2 _____	_____	_____	_____	<u>X</u> 2- Dominance Test is >50%	
	<u>0</u>	= Total Cover		3- Prevalence Index is ≤ 3.0 <sup>1</sup>	
Bare Ground in Herb Stratum <u>0</u>				4- Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
				5- Wetland Non-Vascular Plants <sup>1</sup>	
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No \_\_\_\_\_

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/2	96	7.5YR 3/4	1	C	M	Silt Loam	Coarse
0-16			10YR 3/1	5				Black concretions

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sall Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/11/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 7  
 Investigator(s): TF/AH/SE Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

VEGETATION - Use scientific names of plants.

Tree Stratum (plot size: <u>30</u> )	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 <i>Fraxinus latifolia</i>	40	X	FACW	Number of Dominant Species That are OBL, FACW, or FAC:	<u>3</u> (A)
2 _____				Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
3 _____				Percent of Dominant Species That are OBL, FACW, or FAC:	<u>100%</u> (A/B)
4 _____	40	= Total Cover		Prevalence Index Worksheet:	
Shrub/Stratum (plot size: _____)				Total % Cover of	Multiply by:
2 _____				OBL Species	x 1 = <u>0</u>
3 _____				FACW species	x 2 = <u>0</u>
4 _____				FAC Species	x 3 = <u>0</u>
5 _____				FACU Species	x 4 = <u>0</u>
	0	= Total Cover		UPL Species	x 5 = <u>0</u>
Herb Stratum (plot size: <u>5</u> )				Column Totals	<u>0</u> (A) <u>0</u> (B)
1 <i>Poa sp.</i>	50	X	(FAC)	Prevalence Index = B/A = <u>#DIV/0!</u>	
2 <i>Ranunculus repens</i>	40	X	FAC	Hydrophytic Vegetation Indicators:	
3 <i>Festuca arundinacea</i>	15		FAC	1- Replid Test for Hydrophytic Vegetation	
4 <i>Bromus hordeaceus</i>	10		FACU	<u>X</u> 2- Dominance Test is >50%	
5 <i>Dactylis glomerata</i>	5		FACU	3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
6 <i>Epilobium ciliatum</i>	1		FACW	4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
7 <i>Rumex crispus</i>	1		FAC	5- Wetland Non-Vascular Plants <sup>1</sup>	
8 _____				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
	122	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Woody Vine Stratum (plot size: _____)				Hydrophytic Vegetation Present?	Yes <u>X</u> No _____
1 _____					
2 _____					
	0	= Total Cover			
Bare Ground in Herb Stratum <u>0</u>					

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 3/2	100					Silty Clay Loam	
6-16	10YR 4/2	90	10YR 5/6	9	C	M	Silty Clay Loam	Fine-medium
6-16			10YR 4/6	1	C	PL		OR's

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >16  
 Saturation Present? Yes  No  Depth (inches): >16  
 (Includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Too few roots in 6-16 inch layer, so not enough OR's.

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

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/11/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 8  
 Investigator(s): TF/AH/SE Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: <u>30</u> )				Number of Dominant Species	
1 <u><i>Pseudotsuga menziesii</i></u>	<u>60</u>	<u>X</u>	<u>FACU</u>	That are OBL, FACW, or FAC:	<u>2</u> (A)
2 _____				Total Number of Dominant	
3 _____				Species Across All Strata:	<u>4</u> (B)
4 _____				Percent of Dominant Species	
	<u>60</u>	= Total Cover		That are OBL, FACW, or FAC:	<u>50%</u> (A/B)
<b>ng/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
2 _____				Total % Cover of	Multiply by:
3 _____				OBL Species	x 1 = <u>0</u>
4 _____				FACW species	x 2 = <u>0</u>
5 _____				FAC Species	x 3 = <u>0</u>
	<u>0</u>	= Total Cover		FACU Species	x 4 = <u>0</u>
				UPL Species	x 5 = <u>0</u>
				Column Totals	<u>0</u> (A) <u>0</u> (B)
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index = B/A = <u>#DIV/0!</u>	
1 <u><i>Festuca arundinacea</i></u>	<u>30</u>	<u>X</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 <u><i>Polystichum munitum</i></u>	<u>20</u>	<u>X</u>	<u>FACU</u>	1- Rapid Test for Hydrophytic Vegetation	
3 <u><i>Poa sp.</i></u>	<u>20</u>	<u>X</u>	<u>(FAC)</u>	2- Dominance Test is >50%	
4 <u><i>Holcus lanatus</i></u>	<u>10</u>		<u>FAC</u>	3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5 <u><i>Ranunculus repens</i></u>	<u>10</u>		<u>FAC</u>	4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6 <u><i>Galium aparine</i></u>	<u>5</u>		<u>FACU</u>	5- Wetland Non-Vascular Plants <sup>1</sup>	
7 <u><i>Moss sp.</i></u>	<u>5</u>		<u>(FAC)</u>	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8 _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
	<u>100</u>	= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>	
<b>Woody Vine Stratum</b> (plot size: _____)					
1 _____					
2 _____					
	<u>0</u>	= Total Cover			
Bare Ground in Herb Stratum <u>0</u>					

Remarks:

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR 3/2	100					Silty Clay Loam	
5-16	10YR 4/2	60					Silty Clay Loam	
5-16	10YR 4/3	40					Silty Clay Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: \_\_\_\_\_  
 Depth (Inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:  
 5-16" is A mixed matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present?  
 Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: North Holladay Industrial Park City/County: Cornellus/Washington Sampling Date: 6/11/2013  
 Applicant/Owner: City of Cornellus State: OR Sampling Point: 9  
 Investigator(s): TF/AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Inform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>3</u> (A)	
2	_____	_____	_____	Total Number of Dominant	
3	_____	_____	_____	Species Across All Strata: <u>3</u> (B)	
4	_____	_____	_____	Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
<b>Ing/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
2	_____	_____	_____	Total % Cover of _____ Multiply by: _____	
3	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
4	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
5	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
	<u>0</u>	= Total Cover		FACU Species _____ x 4 = <u>0</u>	
				UPL Species _____ x 5 = <u>0</u>	
				Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index = B/A = <u>#DIV/0!</u>	
1	<u>40</u>	<u>X</u>	<u>(FAC)</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2	<u>35</u>	<u>X</u>	<u>FAC</u>	1- Rapid Test for Hydrophytic Vegetation	
3	<u>20</u>	<u>X</u>	<u>FAC</u>	<u>X</u> 2- Dominance Test Is >50%	
4	<u>5</u>		<u>FAC</u>	3- Prevalence Index Is ≤ 3.0 <sup>1</sup>	
5	_____	_____	_____	4- Morphological Adaptations <sup>1</sup> (provide supporting	
6	_____	_____	_____	data in Remarks or on a separate sheet)	
7	_____	_____	_____	5- Wetland Non-Vascular Plants <sup>1</sup>	
8	_____	_____	_____	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
	<u>100</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless	
<b>Woody Vine Stratum</b> (plot size: _____)				disturbed or problematic.	
1	_____	_____	_____	<b>Hydrophytic</b>	
2	_____	_____	_____	<b>Vegetation</b>	
	<u>0</u>	= Total Cover		Present? Yes <u>X</u> No _____	
Are Ground in Herb Stratum <u>0</u>					
Remarks:					

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 3/1	99	7.5YR 4/4	1	C	M	Silty Clay Loam	Fine
6-18	10YR 3/1	97	5YR 3/4	1	C	M	Silty Clay Loam	Medium
6-18			5YR 3/4	2	C	PL		OR's

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histlic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histlic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (If present):**

Type: \_\_\_\_\_

Depth (Inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks: \_\_\_\_\_

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquicard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D8) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

**Field Observations:**

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (Inches): _____	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (Inches): <u>&gt;18</u>	
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (Inches): <u>&gt;18</u>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: \_\_\_\_\_

Remarks: **Soils moist with small pockets of saturation.**

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

Project/Site: North Holladay Industrial Park City/Country: Cornelius/Washington Sampling Date: 6/11/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 10  
 Investigator(s): AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None

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

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

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

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
(plot size: _____)				Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A)	
1 _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)	
2 _____				Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
3 _____				Prevalence Index Worksheet:	
4 _____				Total % Cover of _____ Multiply by:	
5 _____	<u>0</u>	= Total Cover		OBL Species _____ x 1 = <u>0</u>	
				FACW species _____ x 2 = <u>0</u>	
				FAC Species _____ x 3 = <u>0</u>	
				FACU Species _____ x 4 = <u>0</u>	
				UPL Species _____ x 5 = <u>0</u>	
				Column Totals <u>0</u> (A) <u>0</u> (B)	
				Prevalence Index = B/A = <u>#DIV/0!</u>	
				Hydrophytic Vegetation Indicators:	
				1- Rapid Test for Hydrophytic Vegetation	
				<u>X</u> 2- Dominance Test is >50%	
				3- Prevalence Index is ≤ 3.0 <sup>1</sup>	
				4- Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
				5- Wetland Non-Vascular Plants <sup>1</sup>	
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
				Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
				are Ground in Herb Stratum <u>0</u>	

Remarks:

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 3/1	100					Silt Loam	
6-16	10YR 3/1	98	10YR 3/3	2	C	M	Silty Clay Loam	Fine

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches): _____
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches): <u>&gt;16</u>
Saturation Present?	Yes _____	No <u>X</u>	Depth (inches): <u>&gt;16</u>

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: North Holladay Industrial Park City/County: Cornellus/Washington Sampling Date: 6/11/2013  
 Applicant/Owner: City of Cornellus State: OR Sampling Point: 11  
 Regulator(s): AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
<b>Tree Stratum (plot size: 30)</b>			
1 <i>Fraxinus latifolia</i>	30	X	FACW
2 _____			
3 _____			
4 _____			
	30	= Total Cover	
<b>Log/Shrub Stratum (plot size: 5)</b>			
1 <i>Rubus armeniacus</i>	2	X	FACU
2 _____			
3 _____			
4 _____			
5 _____			
	2	= Total Cover	
<b>Herb Stratum (plot size: 5)</b>			
1 <i>Dactylis glomerata</i>	50	X	FACU
2 <i>Festuca arundinacea</i>	50	X	FAC
3 <i>Poa palustris</i>	30	X	FAC
4 <i>Galium aparine</i>	10		FACU
5 _____			
6 _____			
7 _____			
8 _____			
	140	= Total Cover	
<b>Woody Vine Stratum (plot size: _____)</b>			
1 _____			
2 _____			
	0	= Total Cover	
<b>Bare Ground In Herb Stratum</b> <u>0</u>			

**Dominance Test worksheet:**

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 60% (A/B)

**Prevalence Index Worksheet:**

Total % Cover of	Multiply by:	
OBL Species	x 1 =	0
FACW species	x 2 =	0
FAC Species	x 3 =	0
FACU Species	x 4 =	0
UPL Species	x 5 =	0
Column Totals	<u>0</u> (A)	<u>0</u> (B)

Prevalence Index = B/A = #DIV/0!

**Hydrophytic Vegetation Indicators:**

\_\_\_\_\_ 1- Rapid Test for Hydrophytic Vegetation

X 2- Dominance Test is >50%

\_\_\_\_\_ 3-Prevalence Index is ≤ 3.0<sup>1</sup>

\_\_\_\_\_ 4-Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

\_\_\_\_\_ 5- Wetland Non-Vascular Plants<sup>1</sup>

\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Remarks:

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/2	100					Silt Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histlic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histlic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks: \_\_\_\_\_

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquicard (D3)
	<input type="checkbox"/> Fac-Neutral Test (D5)
	<input type="checkbox"/> Raised Ant Mounds (D8) (LRR A)
	<input type="checkbox"/> Frost-Heave Hummocks (D7)

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): >16

Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): >16 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: \_\_\_\_\_

Remarks: \_\_\_\_\_

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

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/11/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 12  
 Investigator(s): AH Section, Township, Range: Section 33, T 1 North, R 3 West

Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None

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

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

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

**VEGETATION - Use scientific names of plants.**

Tree Stratum (plot size: <u>30</u> )	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 <u><i>Crataegus monogyna</i></u>	<u>40</u>	<u>X</u>	<u>FAC</u>	Number of Dominant Species That are OBL, FACW, or FAC:	<u>2</u> (A)
2 _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species That are OBL, FACW, or FAC:	<u>67%</u> (A/B)
4 _____	<u>40</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
				Total % Cover of	Multiply by:
				OBL Species _____	x 1 = <u>0</u>
				FACW species _____	x 2 = <u>0</u>
				FAC Species _____	x 3 = <u>0</u>
				FACU Species _____	x 4 = <u>0</u>
				UPL Species _____	x 5 = <u>0</u>
				Column Totals	<u>0</u> (A) <u>0</u> (B)
				Prevalence Index = B/A =	<u>#DIV/0!</u>
				<b>Hydrophytic Vegetation Indicators:</b>	
				1- Rapid Test for Hydrophytic Vegetation	
				<u>X</u> 2- Dominance Test Is >50%	
				3-Prevalence Index Is ≤ 3.0 <sup>1</sup>	
				4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
				5- Wetland Non-Vascular Plants <sup>1</sup>	
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
				Hydrophytic Vegetation Present?	Yes <u>X</u> No _____

Shrub/Straw Stratum (plot size: <u>5</u> )	absolute % cover	Dominant Species?	Indicator Status
1 <u><i>Symphoricarpos albus</i></u>	<u>45</u>	<u>X</u>	<u>FACU</u>
2 <u><i>Rubus armeniacus</i></u>	<u>1</u>	_____	<u>FACU</u>
3 _____	_____	_____	_____
4 _____	_____	_____	_____
5 _____	<u>46</u>	= Total Cover	

Herb Stratum (plot size: <u>5</u> )	absolute % cover	Dominant Species?	Indicator Status
1 <u>Unidentified grass</u>	<u>50</u>	<u>X</u>	<u>(FAC)</u>
2 <u><i>Geum macrophyllum</i></u>	<u>5</u>	_____	<u>FAC</u>
3 <u><i>Fraxinus latifolia</i></u>	<u>5</u>	_____	<u>FACW</u>
4 <u><i>Ranunculus repens</i></u>	<u>3</u>	_____	<u>FAC</u>
5 <u><i>Rumex crispus</i></u>	<u>1</u>	_____	<u>FAC</u>
6 _____	_____	_____	_____
7 _____	_____	_____	_____
8 _____	<u>64</u>	= Total Cover	

Woody Vine Stratum (plot size: _____)	absolute % cover	Dominant Species?	Indicator Status
1 _____	_____	_____	_____
2 _____	_____	_____	_____
	<u>0</u>	= Total Cover	

Bare Ground in Herb Stratum	absolute % cover
_____	<u>30</u>

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 3/2	100					Silt Loam	
8-14	10YR 3/2	97	10YR 3/4	3	C	M	Silt Loam	Medlum
14+								Shovel refusal - tree roots

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophyllc vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): >14  
 Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): >14  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/11/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 13  
 Investigator(s): TF/AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: <u>30</u> )				Number of Dominant Species	
1 <u>Fraxinus latifolia</u>	<u>30</u>	<u>X</u>	<u>FACW</u>	That are OBL, FACW, or FAC: <u>4</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>5</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species	
4 _____	_____	_____	_____	That are OBL, FACW, or FAC: <u>80%</u> (A/B)	
	<u>30</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Woody/Shrub Stratum</b> (plot size: <u>5</u> )				Total % Cover of _____ Multiply by: _____	
1 <u>Rubus armeniacus</u>	<u>5</u>	<u>X</u>	<u>FACU</u>	OBL Species _____ x 1 = <u>0</u>	
2 _____	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
3 _____	_____	_____	_____	FAC species _____ x 3 = <u>0</u>	
4 _____	_____	_____	_____	FACU species _____ x 4 = <u>0</u>	
5 _____	_____	_____	_____	UPL Species _____ x 5 = <u>0</u>	
	<u>5</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index = B/A = <u>#DIV/0!</u>	
1 <u>Poa sp.</u>	<u>35</u>	<u>X</u>	<u>(FAC)</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 <u>Ranunculus repens</u>	<u>25</u>	<u>X</u>	<u>FAC</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
3 <u>Festuca arundinacea</u>	<u>20</u>	<u>X</u>	<u>FAC</u>	<u>X</u> 2- Dominance Test is >50%	
4 <u>Carex densa</u>	<u>10</u>	_____	<u>OBL</u>	_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5 <u>Phalaris arundinacea</u>	<u>5</u>	_____	<u>FACW</u>	_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6 <u>Juncus tenuis</u>	<u>5</u>	_____	<u>FAC</u>	_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7 _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8 _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
	<u>100</u>	= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
<b>Woody Vine Stratum</b> (plot size: _____)					
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
<b>Bare Ground in Herb Stratum</b> <u>0</u>					
Remarks:					

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 3/2	93	10YR 4/4	3	C	M	Silty Clay Loam	Fine
0-12			5YR 3/4	2	C	M		Medium
0-12			5YR 3/4	2	C	PL		OR's
12+								Shovel refusal

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S8)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

Many large roots.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B8)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Reised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >12  
 Saturation Present? Yes  No  Depth (inches): >12  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/13/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 14  
 Investigator(s): TF/AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terraca, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: <u>30</u> )				Number of Dominant Species	
1 <i>Pseudotsuga menziesii</i>	40	X	FACU	That are OBL, FACW, or FAC:	<u>2</u> (A)
2 _____				Total Number of Dominant Species Across All Strata:	
3 _____					<u>4</u> (B)
4 _____				Percent of Dominant Species	
	40	= Total Cover		That are OBL, FACW, or FAC:	<u>50%</u> (A/B)
<b>Shrub/Stratum</b> (plot size: <u>5</u> )				<b>Prevalence Index Worksheet:</b>	
1 <i>Symphoricarpos albus</i>	60	X	FACU	Total % Cover of	Multiply by:
2 <i>Rubus armeniacus</i>	5		FACU	OBL Species	<u>0</u> x 1 = <u>0</u>
3 _____				FACW species	<u>0</u> x 2 = <u>0</u>
4 _____				FAC Species	<u>105</u> x 3 = <u>315</u>
5 _____				FACU Species	<u>105</u> x 4 = <u>420</u>
	65	= Total Cover		UPL Species	<u>0</u> x 5 = <u>0</u>
<b>Herb Stratum</b> (plot size: <u>5</u> )				Column Totals	<u>210</u> (A) <u>735</u> (B)
1 <i>Ranunculus repens</i>	50	X	FAC	Prevalence Index = B/A = <u>3.50</u>	
2 <i>Equisetum arvense</i>	30	X	FAC	<b>Hydrophytic Vegetation Indicators:</b>	
3 <i>Poa sp.</i>	20		(FAC)	_____ 1- Rapid Test for Hydrophytic Vegetation	
4 <i>Cirsium arvense</i>	5		FAC	_____ 2- Dominance Test Is >50%	
5 _____				_____ 3- Prevalence Index Is ≤ 3.0 <sup>1</sup>	
6 _____				_____ 4- Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
7 _____				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
8 _____				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
	105	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b>	
1 _____				Yes _____	No <u>X</u>
2 _____					
	0	= Total Cover			
<b>Bare Ground In Herb Stratum</b> <u>0</u>					
Remarks:					

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 3/3	100					Silt Loam	
4-16	10YR 3/3	40					Silt Loam	Mixed matrix
4-16	10YR 3/2	60					Silt Loam	Mixed matrix

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (Inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquifer (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

Project/Site: North Holladay Industrial Park City/County: Cornellus/Washington Sampling Date: 6/13/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 15  
 Investigator(s): TF/AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Inform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status
<b>Tree Stratum</b> (plot size: _____)			
1 _____			
2 _____			
3 _____			
4 _____			
	<u>0</u>	= Total Cover	
<b>Log/Shrub Stratum</b> (plot size: _____)			
1 _____			
2 _____			
3 _____			
4 _____			
5 _____			
	<u>0</u>	= Total Cover	
<b>Herb Stratum</b> (plot size: <u>5</u> )			
1 <i>Phalaris arundinacea</i>	<u>60</u>	<u>X</u>	<u>FACW</u>
2 <i>Ranunculus repens</i>	<u>40</u>	<u>X</u>	<u>FAC</u>
3 _____			
4 _____			
5 _____			
6 _____			
7 _____			
8 _____			
	<u>100</u>	= Total Cover	
<b>Woody Vine Stratum</b> (plot size: _____)			
1 _____			
2 _____			
	<u>0</u>	= Total Cover	
Open Ground in Herb Stratum	<u>0</u>		

**Dominance Test worksheet:**

Number of Dominant Species  
 That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species  
 That are OBL, FACW, or FAC: 100% (A/B)

**Prevalence Index Worksheet:**

Total % Cover of	Multiply by:	
OBL Species _____	x 1 =	<u>0</u>
FACW species _____	x 2 =	<u>0</u>
FAC Species _____	x 3 =	<u>0</u>
FACU Species _____	x 4 =	<u>0</u>
UPL Species _____	x 5 =	<u>0</u>
Column Totals <u>0</u> (A)		<u>0</u> (B)

Prevalence Index = B/A = #DIV/0!

**Hydrophytic Vegetation Indicators:**

1- Rapid Test for Hydrophytic Vegetation \_\_\_\_\_

X 2- Dominance Test is >50% \_\_\_\_\_

3- Prevalence Index is ≤ 3.0<sup>1</sup> \_\_\_\_\_

4- Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet) \_\_\_\_\_

5- Wetland Non-Vascular Plants<sup>1</sup> \_\_\_\_\_

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain) \_\_\_\_\_

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Remarks:

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	10YR 3/2	85	10YR 4/6	15	C	M	Silty Clay Loam	Fine
9-18	10YR 3/2	20	10YR 4/6	20	C	M	Silty Clay Loam	Fine-medium
9-18	10YR 4/1	60					Silty Clay Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquifer (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >18  
 Saturation Present? Yes  No  Depth (inches): >18  
 (includes capillary fringe)

Wetland Hydrology Present?  
 Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/13/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 16  
 Investigator(s): AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Inform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1				That are OBL, FACW, or FAC: <u>3</u> (A)	
2				Total Number of Dominant	
3				Species Across All Strata: <u>4</u> (B)	
4				Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>75%</u> (A/B)	
<b>Woody/Shrub Stratum</b> (plot size: <u>5</u> )				<b>Prevalence Index Worksheet:</b>	
1	<u>15</u>	<u>X</u>	<u>FACU</u>	Total % Cover of	Multiply by:
2				OBL Species	x 1 = <u>0</u>
3				FACW species	x 2 = <u>0</u>
4				FAC Species	x 3 = <u>0</u>
5				FACU Species	x 4 = <u>0</u>
	<u>15</u>	= Total Cover		UPL Species	x 5 = <u>0</u>
<b>Herb Stratum</b> (plot size: <u>5</u> )				Column Totals	<u>0</u> (A) <u>0</u> (B)
1	<u>30</u>	<u>X</u>	<u>FAC</u>	Prevalence Index = B/A = <u>#DIV/0!</u>	
2	<u>30</u>	<u>X</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b>	
3	<u>20</u>	<u>X</u>	<u>FAC</u>	1- Rapid Test for Hydrophytic Vegetation	
4	<u>15</u>		<u>FACU</u>	<u>X</u> 2- Dominance Test is >50%	
5	<u>2</u>		<u>FACU</u>	3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
6	<u>2</u>		<u>FAC</u>	4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
7				5- Wetland Non-Vascular Plants <sup>1</sup>	
8				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
	<u>99</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
1					
2					
	<u>0</u>	= Total Cover			
Bare Ground in Herb Stratum <u>0</u>					

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR 3/3	100					Silt Loam	
5-16	10YR 3/4	100					Silt Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

Project/Site: North Holladay Industrial Park City/County: Cornellus/Washington Sampling Date: 6/13/2013  
 Applicant/Owner: City of Cornellus State: OR Sampling Point: 17  
 Investigator(s): TF/AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (plot size: _____)				<b>Dominance Test worksheet:</b>	
1 _____	_____	_____	_____	Number of Dominant Species	
2 _____	_____	_____	_____	That are OBL, FACW, or FAC: <u>2</u> (A)	
3 _____	_____	_____	_____	Total Number of Dominant	
4 _____	_____	_____	_____	Species Across All Strata: <u>2</u> (B)	
	<u>0</u>	= Total Cover		Percent of Dominant Species	
<b>Woody/Shrub Stratum</b> (plot size: _____)				That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1 _____	_____	_____	_____	<b>Prevalence Index Worksheet:</b>	
2 _____	_____	_____	_____		
3 _____	_____	_____	_____		
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
	<u>0</u>	= Total Cover		Total % Cover of _____ Multiply by: _____	
<b>Herb Stratum</b> (plot size: <u>5</u> )				OBL Species _____ x 1 = <u>0</u>	
1 <i>Phalaris arundinacea</i>	<u>80</u>	<u>X</u>	<u>FACW</u>	FACW species _____ x 2 = <u>0</u>	
2 <i>Ranunculus repens</i>	<u>40</u>	<u>X</u>	<u>FAC</u>	FAC species _____ x 3 = <u>0</u>	
3 _____	_____	_____	_____	FACU species _____ x 4 = <u>0</u>	
4 _____	_____	_____	_____	UPL Species _____ x 5 = <u>0</u>	
5 _____	_____	_____	_____	Column Totals <u>0</u> (A) <u>0</u> (B)	
6 _____	_____	_____	_____	Prevalence Index = B/A = <u>#DIV/0!</u>	
7 _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b>	
8 _____	_____	_____	_____		_____ 1- Rapid Test for Hydrophytic Vegetation
	<u>120</u>	= Total Cover			<u>X</u> 2- Dominance Test is >50%
<b>Woody Vine Stratum</b> (plot size: _____)					_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>
1 _____	_____	_____	_____		_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
2 _____	_____	_____	_____	_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
	<u>0</u>	= Total Cover		_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Bare Ground in Herb Stratum</b> <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Remarks:				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10YR 3/3	99	10YR 4/4	1	C	M	Silt Loam	Fine
3-16	10YR 4/1	85	10YR 3/6	15	C	M	Silty Clay Loam	Medlum and coarse

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histc Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histc (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (Inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 14  
 Saturation Present? Yes  No  Depth (inches): 12  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/13/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 18  
 Investigator(s): TF/AH Section, Township, Range: Section 33, T 1 North, R 3 West

Landform (hillslope, terrace, etc.): Flat/terrace Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None

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

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

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

Remarks:

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status
<b>Tree Stratum</b> (plot size: <u>30</u> )			
1 <u>Fraxinus latifolia</u>	<u>40</u>	<u>X</u>	<u>FACW</u>
2 _____			
3 _____			
4 _____			
	<u>40</u>	= Total Cover	
<b>Emerging/Shrub Stratum</b> (plot size: <u>5</u> )			
1 <u>Physocarpus capitatus</u>	<u>80</u>	<u>X</u>	<u>FACW</u>
2 <u>Spiraea douglasii</u>	<u>5</u>		<u>FACW</u>
3 _____			
4 _____			
5 _____			
	<u>85</u>	= Total Cover	
<b>Herb Stratum</b> (plot size: <u>5</u> )			
1 <u>Lysichiton americanus</u>	<u>40</u>	<u>X</u>	<u>OBL</u>
2 <u>Carex obnupta</u>	<u>15</u>	<u>X</u>	<u>OBL</u>
3 <u>Glyceria elata</u>	<u>5</u>		<u>FACW</u>
4 _____			
5 _____			
6 _____			
7 _____			
8 _____			
	<u>60</u>	= Total Cover	
<b>Woody Vine Stratum</b> (plot size: _____)			
1 _____			
2 _____			
	<u>0</u>	= Total Cover	
<b>% Bare Ground In Herb Stratum</b> <u>0</u>			

**Dominance Test worksheet:**

Number of Dominant Species  
 That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species  
 That are OBL, FACW, or FAC: 100% (A/B)

**Prevalence Index Worksheet:**

Total % Cover of	Multiply by:	
OBL Species	x 1 =	<u>0</u>
FACW species	x 2 =	<u>0</u>
FAC Species	x 3 =	<u>0</u>
FACU Species	x 4 =	<u>0</u>
UPL Species	x 5 =	<u>0</u>
Column Totals	<u>0</u> (A)	<u>0</u> (B)

Prevalence Index = B/A = #DIV/0!

**Hydrophytic Vegetation Indicators:**

- 1- Rapid Test for Hydrophytic Vegetation
- 2- Dominance Test is >50%
- 3- Prevalence Index is ≤ 3.0<sup>1</sup>
- 4- Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
- 5- Wetland Non-Vascular Plants<sup>1</sup>

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 2/2	100					Silty Clay Loam	Some organic

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histc Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histc (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:  
Faint mottles go away with wetting

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): 12

Saturation Present? Yes  No  Depth (inches): 8 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/13/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 19  
 Investigator(s): TF/AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Verboort silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (plot size: _____)				<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
<u>0</u> = Total Cover				
<b>Shrub/Stratum</b> (plot size: _____)				
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	
<u>0</u> = Total Cover				
<b>Herb Stratum</b> (plot size: <u>5</u> )				<b>Prevalence Index Worksheet:</b> Total % Cover of _____ Multiply by: _____ OBL Species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC Species _____ x 3 = <u>0</u> FACU Species _____ x 4 = <u>0</u> UPL Species _____ x 5 = <u>0</u> Column Totals <u>0</u> (A) <u>0</u> (B)  Prevalence Index = B/A = <u>#DIV/0!</u>
1	<u>30</u>	<u>X</u>	<u>FACW</u>	
2	<u>30</u>	<u>X</u>	<u>FAC</u>	
3	<u>20</u>	<u>X</u>	<u>FAC</u>	
4	_____	_____	_____	
5	_____	_____	_____	
6	_____	_____	_____	
7	_____	_____	_____	
8	_____	_____	_____	
<u>80</u> = Total Cover				
<b>Woody Vine Stratum</b> (plot size: _____)				
1	_____	_____	_____	
2	_____	_____	_____	
<u>0</u> = Total Cover				
<b>Bare Ground in Herb Stratum</b> <u>0</u>				

**Hydrophytic Vegetation Indicators:**

- \_\_\_\_\_ 1- Rapid Test for Hydrophytic Vegetation
- X 2- Dominance Test is >50%
- \_\_\_\_\_ 3-Prevalence Index is ≤ 3.0<sup>1</sup>
- \_\_\_\_\_ 4-Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
- \_\_\_\_\_ 5- Wetland Non-Vascular Plants<sup>1</sup>
- \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14	10YR 3/1	92	10YR 4/4	8	C	M	Silty Clay Loam	10-20% gravel in profile

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S8)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 8  
 Saturation Present? Yes  No  Depth (inches): Surface  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: North Holladay Industrial Park      City/County: Cornellus/Washington      Sampling Date: 6/13/2013  
 Applicant/Owner: City of Cornellus      State: OR      Sampling Point: 20  
 Investigator(s): TF/AH      Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): Slope      Local relief (concave, convex, none): \_\_\_\_\_      Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A      Lat: \_\_\_\_\_      Long: \_\_\_\_\_      Datum: \_\_\_\_\_  
 Soil Map Unit Name: Verboort silty clay loam      NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year?      Yes X      No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed?      Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

Remarks:

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>3</u> (A)	
2	_____	_____	_____	Total Number of Dominant	
3	_____	_____	_____	Species Across All Strata: <u>3</u> (B)	
4	_____	_____	_____	Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
<b>Woody/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
1	_____	_____	_____	Total % Cover of _____ Multiply by: _____	
2	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
3	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
4	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
5	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
				Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index = B/A = <u>#DIV/0!</u>	
1	<u>40</u>	<u>X</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2	<u>30</u>	<u>X</u>	<u>FAC</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
3	<u>20</u>	<u>X</u>	<u>FAC</u>	_____ <u>X</u> 2- Dominance Test is >50%	
4	<u>5</u>		<u>FACU</u>	_____ 3- Prevalence Index is ≤ 3.0 <sup>1</sup>	
5	<u>5</u>		<u>(FAC)</u>	_____ 4- Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6	_____	_____	_____	_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8	_____	_____	_____	_____ <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
	<u>100</u>	= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
<b>Woody Vine Stratum</b> (plot size: _____)					
1	_____	_____	_____		
2	_____	_____	_____		
	<u>0</u>	= Total Cover			
<b>Bare Ground in Herb Stratum</b> <u>0</u>					

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (molst)	%	Color (molst)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 3/2	90					Silt Loam	10% gravels
8-16	Gley1 4/N	70	10YR 4/4	5	C	M	Clay	15% gravels
8-16	10YR 3/2	10					Silty Clay Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (Inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

Fill/disturbance from underground utility.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >16  
 Saturation Present? Yes  No  Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No OR's, slightly upslope from WL lobe.

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

Project/Site: North Holladay Industrial Park City/County: Cornellus/Washington Sampling Date: 6/13/2013  
 Applicant/Owner: City of Cornellus State: OR Sampling Point: 21  
 Investigator(s): AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Quatama silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (plot size: _____)	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 _____				Number of Dominant Species	
2 _____				That are OBL, FACW, or FAC: <u>1</u> (A)	
3 _____				Total Number of Dominant	
4 _____				Species Across All Strata: <u>1</u> (B)	
	<u>0</u>	= Total Cover		Percent of Dominant Species	
				That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
Woody/Shrub Stratum (plot size: _____)				Prevalence Index Worksheet:	
1 _____				Total % Cover of _____	Multiply by: _____
2 _____				OBL Species _____	x 1 = <u>0</u>
3 _____				FACW species _____	x 2 = <u>0</u>
4 _____				FAC Species _____	x 3 = <u>0</u>
5 _____				FACU Species _____	x 4 = <u>0</u>
	<u>0</u>	= Total Cover		UPL Species _____	x 5 = <u>0</u>
				Column Totals <u>0</u> (A)	<u>0</u> (B)
Herb Stratum (plot size: <u>5</u> )				Prevalence Index = B/A = <u>#DIV/0!</u>	
1 <u>Phalaris arundinacea</u>	<u>100</u>	<u>X</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators:	
2 <u>Gallum aparine</u>	<u>5</u>		<u>FACU</u>	1- Rapid Test for Hydrophytic Vegetation	
3 <u>Equisetum arvense</u>	<u>2</u>		<u>FAC</u>	<u>X</u> 2- Dominance Test is >50%	
4 _____				3- Prevalence Index is ≤ 3.0 <sup>1</sup>	
5 _____				4- Morphological Adaptations <sup>1</sup> (provide supporting	
6 _____				data in Remarks or on a separate sheet)	
7 _____				5- Wetland Non-Vascular Plants <sup>1</sup>	
8 _____				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
	<u>107</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless	
Woody Vine Stratum (plot size: _____)				disturbed or problematic.	
1 _____				Hydrophytic	
2 _____				Vegetation Present? Yes <u>X</u> No _____	
	<u>0</u>	= Total Cover			
Bare Ground in Herb Stratum <u>0</u>					

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	7.5YR 3/2	98	7.5YR 3/3	2	G	M	Silt Loam	Fine

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks: \_\_\_\_\_

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction In Plowed Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
	<input type="checkbox"/> Frost-Heave Hummocks (D7)

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No X      Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No X      Depth (inches): >16

Saturation Present? Yes \_\_\_\_\_ No X      Depth (inches): >16  
(includes capillary fringe)

**Wetland Hydrology Present?**  
Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: \_\_\_\_\_

Remarks: \_\_\_\_\_

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

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/13/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 22  
 Investigator(s): AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Quatama silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1				That are OBL, FACW, or FAC:	<u>2</u> (A)
2				Total Number of Dominant	
3				Species Across All Strata:	<u>3</u> (B)
4				Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC:	<u>67%</u> (A/B)
<b>Woody/Shrub Stratum</b> (plot size: <u>5</u> )				<b>Prevalence Index Worksheet:</b>	
1				Total % Cover of	Multiply by:
2				OBL Species	x 1 = <u>0</u>
3				FACW species	x 2 = <u>0</u>
4				FAC Species	x 3 = <u>0</u>
5				FACU Species	x 4 = <u>0</u>
	<u>20</u>	= Total Cover		UPL Species	x 5 = <u>0</u>
				Column Totals	<u>0</u> (A) <u>0</u> (B)
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index = B/A = <u>#DIV/0!</u>	
1				<b>Hydrophytic Vegetation Indicators:</b>	
2				1- Rapid Test for Hydrophytic Vegetation	
3				<u>X</u> 2- Dominance Test Is >50%	
4				3-Prevalence Index Is ≤ 3.0 <sup>1</sup>	
5				4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6				5- Wetland Non-Vascular Plants <sup>1</sup>	
7				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
	<u>101</u>	= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
<b>Woody Vine Stratum</b> (plot size: _____)					
1					
2					
	<u>0</u>	= Total Cover			
<b>Bare Ground In Herb Stratum</b> <u>0</u>					

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-11	10YR 3/2	100					Silty Clay Loam	
11-18	10YR 3/2	95	10YR 3/4	5	C	M	Silty Clay Loam	Fine

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
- Silt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)
- Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): >18  
 Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): >18  
 (includes capillary fringe)

Wetland Hydrology Present?

Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/13/2013

Applicant/Owner: City of Cornelius State: OR Sampling Point: 23

Investigator(s): TF/AH Section, Township, Range: Section 33, T 1 North, R 3 West

Landform (hillslope, terrace, etc.): Slope/terrace Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_

Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_

Soil Map Unit Name: Quatama silty clay loam NWI Classification: PEMC

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)

Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y

Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

Remarks:

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1				That are OBL, FACW, or FAC: <u>3</u> (A)	
2				Total Number of Dominant	
3				Species Across All Strata: <u>4</u> (B)	
4				Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>75%</u> (A/B)	
<b>Woody/Shrub Stratum</b> (plot size: <u>5</u> )				<b>Prevalence Index Worksheet:</b>	
1				Total % Cover of _____ Multiply by: _____	
2				OBL Species _____ x 1 = <u>0</u>	
3				FACW species _____ x 2 = <u>0</u>	
4				FAC Species _____ x 3 = <u>0</u>	
5				FACU Species _____ x 4 = <u>0</u>	
	<u>15</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
				Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index = B/A = <u>#DIV/0!</u>	
1				<b>Hydrophytic Vegetation Indicators:</b>	
2				_____ 1- Rapid Test for Hydrophytic Vegetation	
3				<u>X</u> 2- Dominance Test is >50%	
4				_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
	<u>110</u>	= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
<b>Woody Vine Stratum</b> (plot size: _____)					
1					
2					
	<u>0</u>	= Total Cover			
<b>Bare Ground in Herb Stratum</b> <u>0</u>					

Remarks:

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	10YR 3/2	98	10YR 4/6	2	C	PL	Silt Loam	OR's
7-16	10YR 3/2	85	10YR 4/2	15	C	M	Silt Loam	Medium

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

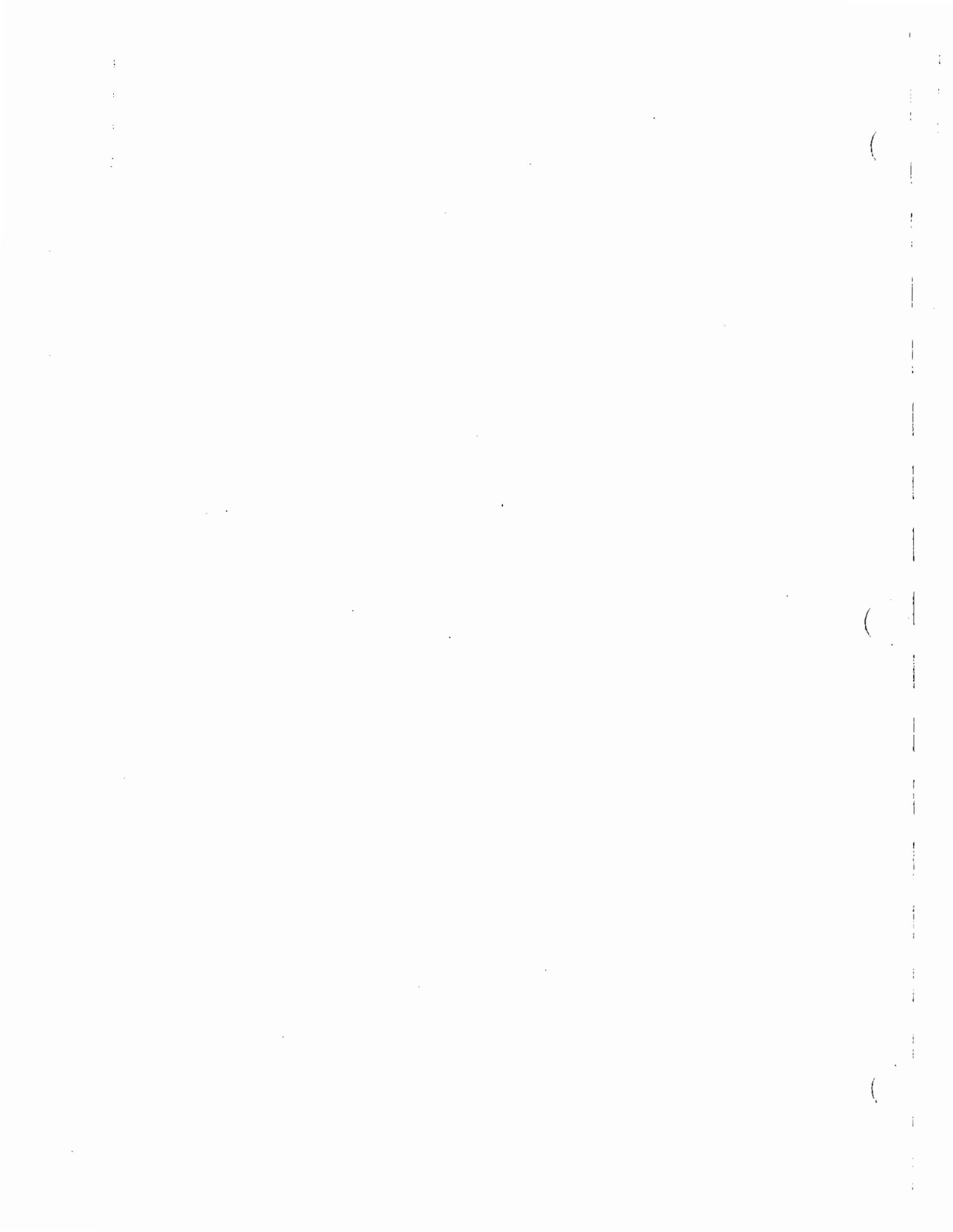
Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >16  
 Saturation Present? Yes  No  Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

There is no Sample Point 24



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

Project/Site: North Holladay Industrial Park City/County: Cornellus/Washington Sampling Date: 6/13/2013  
 Applicant/Owner: City of Cornellus State: OR Sampling Point: 25  
 Investigator(s): TF/AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Woodburn silty clay loam NWI Classification: PEMC

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

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

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

**VEGETATION - Use scientific names of plants.**

Tree Stratum (plot size: _____)	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 _____				Number of Dominant Species	
2 _____				That are OBL, FACW, or FAC:	<u>2</u> (A)
3 _____				Total Number of Dominant	
4 _____				Species Across All Strata:	<u>2</u> (B)
	<u>0</u>	= Total Cover		Percent of Dominant Species	
Woody/Shrub Stratum (plot size: _____)				That are OBL, FACW, or FAC:	<u>100%</u> (A/B)
1 _____				<b>Prevalence Index Worksheet:</b>	
2 _____				Total % Cover of	Multiply by:
3 _____				OBL Species	x 1 = <u>0</u>
4 _____				FACW species	x 2 = <u>0</u>
5 _____				FAC Species	x 3 = <u>0</u>
	<u>0</u>	= Total Cover		FACU Species	x 4 = <u>0</u>
Herb Stratum (plot size: <u>5</u> )				UPL Species	x 6 = <u>0</u>
1 <u>Holcus lanatus</u>	<u>40</u>	<u>X</u>	<u>FAC</u>	Column Totals	<u>0</u> (A) <u>0</u> (B)
2 <u>Lotus corniculatus</u>	<u>20</u>	<u>X</u>	<u>FAC</u>	Prevalence Index = B/A =	<u>#DIV/0!</u>
3 <u>Juncus tenuis</u>	<u>10</u>		<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b>	
4 <u>Alopecurus pratensis</u>	<u>10</u>		<u>FAC</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
5 <u>Carex densa</u>	<u>5</u>		<u>OBL</u>	<u>X</u> 2- Dominance Test is >50%	
6 <u>Phalaris arundinacea</u>	<u>5</u>		<u>FACW</u>	_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
7 _____				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting	
8 _____				data in Remarks or on a separate sheet)	
	<u>90</u>	= Total Cover		_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
Woody Vine Stratum (plot size: _____)				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
1 _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless	
2 _____				disturbed or problematic.	
	<u>0</u>	= Total Cover		Hydrophytic	
Bare Ground in Herb Stratum <u>0</u>				Vegetation	Yes <u>X</u> No _____
Remarks:				Present?	

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 3/2	95	7.5YR 4/6	5	C	PL	Silty Clay Loam	OR's
4-7	10YR 5/2	80	7.5YR 4/6	10	C	M	Silt Loam	Medium
7-16	10YR 3/2	94	7.5YR 4/6	5	C	M	Silty Clay Loam	medium
			7.5YR 4/6	1	C	PL		OR's

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histc Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histc (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (Inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

4-7 has 10% of hard, orange (10YR 4/6) material; resembles broken field tile or brick

**HYDROLOGY**

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquifer (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes  No  Depth (Inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (Inches): >16  
 Saturation Present? Yes  No  Depth (Inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present?  
 Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/6/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 26  
 Investigator(s): TF/AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): Slope bottom Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Woodburn silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1				That are OBL, FACW, or FAC: <u>2</u> (A)	
2				Total Number of Dominant	
3				Species Across All Strata: <u>2</u> (B)	
4				Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
<b>Eng/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
1				Total % Cover of	Multiply by:
2				OBL Species	x 1 = <u>0</u>
3				FACW species	x 2 = <u>0</u>
4				FAC Species	x 3 = <u>0</u>
5				FACU Species	x 4 = <u>0</u>
	<u>0</u>	= Total Cover		UPL Species	x 5 = <u>0</u>
<b>Herb Stratum</b> (plot size: <u>5</u> )				Column Totals	<u>0</u> (A) <u>0</u> (B)
1	<u>Phalaris arundinacea</u>	<u>30</u>	<u>X</u>	Prevalence Index = B/A = <u>#DIV/0!</u>	
2	<u>Lolium perenne</u>	<u>15</u>	<u>X</u>		
3	<u>Equisetum arvense</u>	<u>5</u>	<u>FAC</u>		
4					
5					
6					
7					
8					
	<u>50</u>	= Total Cover			
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b>	
1				1- Rapid Test for Hydrophytic Vegetation	
2				<u>X</u> 2- Dominance Test is >50%	
	<u>0</u>	= Total Cover		3- Prevalence Index is ≤ 3.0 <sup>1</sup>	
<b>Bare Ground in Herb Stratum</b> <u>55</u>				4- Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
				5- Wetland Non-Vascular Plants <sup>1</sup>	
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No \_\_\_\_\_

Remarks:

Recently seeded field; bare ground reflects conditions between rows.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/3	100					Silty Clay Loam	Disturbed

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S8)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:  
 Soil disturbed right under utility line.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present?  
 Yes X No \_\_\_\_\_

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
 Low area, but no primary indicators of hydrology.

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

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/6/2013

Applicant/Owner: City of Cornelius State: OR Sampling Point: 27

Investigator(s): TF/AH Section, Township, Range: Section 33, T 1 North, R 3 West

Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_

Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_

Soil Map Unit Name: Woodburn silty clay loam NWI Classification: None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)

Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y

Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

Remarks:

**VEGETATION - Use scientific names of plants.**

Tree Stratum (plot size: _____)	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 _____	_____	_____	_____	Number of Dominant Species	_____
2 _____	_____	_____	_____	That are OBL, FACW, or FAC:	<u>2</u> (A)
3 _____	_____	_____	_____	Total Number of Dominant	_____
4 _____	_____	_____	_____	Species Across All Strata:	<u>2</u> (B)
	<u>0</u>	= Total Cover		Percent of Dominant Species	_____
				That are OBL, FACW, or FAC:	<u>100%</u> (A/B)
<b>Shrub/Stratum (plot size: _____)</b>				<b>Prevalence Index Worksheet:</b>	
1 _____	_____	_____	_____	Total % Cover of	Multiply by:
2 _____	_____	_____	_____	OBL Species	x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species	x 2 = <u>0</u>
4 _____	_____	_____	_____	FAC Species	x 3 = <u>0</u>
5 _____	_____	_____	_____	FACU Species	x 4 = <u>0</u>
	<u>0</u>	= Total Cover		UPL Species	x 5 = <u>0</u>
				Column Totals	<u>0</u> (A) <u>0</u> (B)
<b>Herb Stratum (plot size: <u>5</u>)</b>				Prevalence Index = B/A = <u>#DIV/0!</u>	
1 <u>Lolium perenne</u>	<u>35</u>	<u>X</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 <u>Festuca arundinacea</u>	<u>20</u>	<u>X</u>	<u>FAC</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
3 _____	_____	_____	_____	<u>X</u> 2- Dominance Test is >50%	
4 _____	_____	_____	_____	_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5 _____	_____	_____	_____	_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting	
6 _____	_____	_____	_____	_____ data in Remarks or on a separate sheet)	
7 _____	_____	_____	_____	_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
8 _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
	<u>55</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless	
				disturbed or problematic.	
<b>Woody Vine Stratum (plot size: _____)</b>				<b>Hydrophytic Vegetation Present?</b>	
1 _____	_____	_____	_____	Yes <u>X</u>	No _____
2 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
<b>Bare Ground in Herb Stratum <u>50</u></b>					

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No \_\_\_\_\_

Remarks: Recently seeded field; bare ground reflects conditions between rows.

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/3	99	10YR 3/4	<1	C	M	Silt Loam	Fine

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks: \_\_\_\_\_

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input checked="" type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Fac-Neutral Test (D5)
	<input type="checkbox"/> Raised Ant Mounds (D8) (LRR A)
	<input type="checkbox"/> Frost-Heave Hummocks (D7)

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): >16

Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
(includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: \_\_\_\_\_

Remarks: Low area in field but no evidence of primary hydrology indicators.

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

Project/Site: North Holladay Industrial Park City/County: Cornellus/Washington Sampling Date: 6/6/2013  
 Applicant/Owner: City of Cornellus State: OR Sampling Point: 28  
 Investigator(s): TF/AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Woodburn silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

Remarks:  
 Apparently disturbed area within grass seed field. Soils include high percentage of gravels at the surface.

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status
<b>Tree Stratum</b> (plot size: _____)			
1			
2			
3			
4			
	<u>0</u>	= Total Cover	
<b>Woody/Shrub Stratum</b> (plot size: _____)			
1			
2			
3			
4			
5			
	<u>0</u>	= Total Cover	
<b>Herb Stratum</b> (plot size: <u>5</u> )			
1	<u>Lolium perenne</u>	<u>X</u>	<u>FAC</u>
2	<u>Poa annua</u>	<u>7</u>	<u>FAC</u>
3	<u>Festuca arundinacea</u>	<u>3</u>	<u>FAC</u>
4			
5			
6			
7			
8			
	<u>40</u>	= Total Cover	
<b>Woody Vine Stratum</b> (plot size: _____)			
1			
2			
	<u>0</u>	= Total Cover	

**Dominance Test worksheet:**

Number of Dominant Species  
 That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species  
 That are OBL, FACW, or FAC: 100% (A/B)

**Prevalence Index Worksheet:**

Total % Cover of	Multiply by:	
OBL Species	x 1 =	<u>0</u>
FACW species	x 2 =	<u>0</u>
FAC Species	x 3 =	<u>0</u>
FACU Species	x 4 =	<u>0</u>
UPL Species	x 5 =	<u>0</u>
Column Totals	<u>0</u> (A)	<u>0</u> (B)

Prevalence Index = B/A = #DIV/0!

**Hydrophytic Vegetation Indicators:**

- \_\_\_\_\_ 1- Rapid Test for Hydrophytic Vegetation
- X 2- Dominance Test is >50%
- \_\_\_\_\_ 3-Prevalence Index is ≤ 3.0<sup>1</sup>
- \_\_\_\_\_ 4-Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
- \_\_\_\_\_ 5- Wetland Non-Vascular Plants<sup>1</sup>
- \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Area Ground In Herb Stratum 60

Remarks:  
 Recently seeded field; bare ground reflects conditions between rows.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14	10YR 3/3	100						Many gravels 5-10%
14-18	10YR 3/3	40						
14-18	10YR 3/2	59	10YR 4/4	1	C	M	Silt Loam	Fine, 10% gravels

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): >18  
 Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): >18  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/6/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 29  
 Investigator(s): TF/AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Quatama silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

**VEGETATION - Use scientific names of plants.**

Tree Stratum (plot size: _____)	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 _____	_____	_____	_____	Number of Dominant Species	
2 _____	_____	_____	_____	That are OBL, FACW, or FAC: <u>2</u> (A)	
3 _____	_____	_____	_____	Total Number of Dominant	
4 _____	_____	_____	_____	Species Across All Strata: <u>2</u> (B)	
	<u>0</u>	= Total Cover		Percent of Dominant Species	
				That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
Shrub/Stratum (plot size: _____)				Prevalence Index Worksheet:	
1 _____	_____	_____	_____	Total % Cover of _____ Multiply by:	
2 _____	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
3 _____	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
4 _____	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
5 _____	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
				Column Totals <u>0</u> (A) <u>0</u> (B)	
Herb Stratum (plot size: <u>5</u> )				Prevalence Index = B/A = <u>#DIV/0!</u>	
1 <u>Festuca arundinacea</u>	<u>40</u>	<u>X</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators:	
2 <u>Poa sp.</u>	<u>40</u>	<u>X</u>	<u>(FAC)</u>	1- Rapid Test for Hydrophytic Vegetation	
3 <u>Galium aparine</u>	<u>20</u>	_____	<u>FACU</u>	<u>X</u> 2- Dominance Test is >50%	
4 <u>Bromus tectorum</u>	<u>10</u>	_____	<u>UPL</u>	3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5 _____	_____	_____	_____	4-Morphological Adaptations <sup>1</sup> (provide supporting	
6 _____	_____	_____	_____	data in Remarks or on a separate sheet)	
7 _____	_____	_____	_____	5- Wetland Non-Vascular Plants <sup>1</sup>	
8 _____	_____	_____	_____	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
	<u>110</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless	
Woody Vine Stratum (plot size: _____)				disturbed or problematic.	
1 _____	_____	_____	_____	<b>Hydrophytic</b>	
2 _____	_____	_____	_____	<b>Vegetation</b>	
	<u>0</u>	= Total Cover		Present? Yes <u>X</u> No _____	
Bare Ground In Herb Stratum <u>0</u>					
Remarks:					



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

Project/Site: North Holladay Industrial Park City/County: Cornellus/Washington Sampling Date: 6/6/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 30  
 Investigator(s): AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Elevation (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Quatama silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

**VEGETATION - Use scientific names of plants.**

Tree Stratum (plot size: _____)	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 _____				Number of Dominant Species	
2 _____				That are OBL, FACW, or FAC:	<u>2</u> (A)
3 _____				Total Number of Dominant	
4 _____				Species Across All Strata:	<u>2</u> (B)
	<u>0</u>	= Total Cover		Percent of Dominant Species	
Shrub/Stratum (plot size: _____)				That are OBL, FACW, or FAC:	<u>100%</u> (A/B)
1 _____				Prevalence Index Worksheet:	
2 _____				Total % Cover of	Multiply by:
3 _____				OBL Species	x 1 = <u>0</u>
4 _____				FACW species	x 2 = <u>0</u>
5 _____				FAC Species	x 3 = <u>0</u>
	<u>0</u>	= Total Cover		FACU Species	x 4 = <u>0</u>
Herb Stratum (plot size: <u>5</u> )				UPL Species	x 5 = <u>0</u>
1 <u>Festuca arundinacea</u>	<u>60</u>	<u>X</u>	<u>FAC</u>	Column Totals	<u>0</u> (A) <u>0</u> (B)
2 <u>Poa sp.</u>	<u>30</u>	<u>X</u>	<u>(FAC)</u>	Prevalence Index = B/A =	<u>#DIV/0!</u>
3 <u>Phalaris arundinacea</u>	<u>10</u>		<u>FACW</u>	Hydrophytic Vegetation Indicators:	
4 <u>Bromus tectorum</u>	<u>5</u>		<u>UPL</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
5 _____				<u>X</u> _____ 2- Dominance Test is >50%	
6 _____				_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
7 _____				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting	
8 _____				data in Remarks or on a separate sheet)	
	<u>105</u>	= Total Cover		_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
Woody Vine Stratum (plot size: _____)				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
1 _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless	
2 _____				disturbed or problematic.	
	<u>0</u>	= Total Cover		Hydrophytic	
Bare Ground in Herb Stratum <u>0</u>				Vegetation	Yes <u>X</u> No _____
				Present?	

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/1	93	5YR 3/4	1	C	M	Silty Clay Loam	Medium
0-16			10YR 4/4	3	C	M	Silty Clay Loam	Medium
0-16			10YR 4/6	3	C	PL		OR's

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquicard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes  No  Depth (Inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >16  
 Saturation Present? Yes  No  Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/6/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 31  
 Investigator(s): TF/AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Verboort silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1				That are OBL, FACW, or FAC: <u>1</u> (A)	
2				Total Number of Dominant	
3				Species Across All Strata: <u>2</u> (B)	
4				Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>50%</u> (A/B)	
<b>Woody Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
1				Total % Cover of _____ Multiply by: _____	
2				OBL Species _____ x 1 = <u>0</u>	
3				FACW species _____ x 2 = <u>0</u>	
4				FAC Species <u>30</u> x 3 = <u>90</u>	
5				FACU Species <u>10</u> x 4 = <u>40</u>	
	<u>0</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Column Totals <u>40</u> (A) <u>130</u> (B)	
1	<u>30</u>	<u>X</u>	<u>FAC</u>	Prevalence Index = B/A = <u>3.25</u>	
2	<u>10</u>	<u>X</u>	<u>UPL</u>		
3					
4					
5					
6					
7					
8					
	<u>40</u>	= Total Cover			
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b>	
1				_____ 1- Rapid Test for Hydrophytic Vegetation	
2				_____ 2- Dominance Test Is >50%	
	<u>0</u>	= Total Cover		_____ 3- Prevalence Index Is ≤ 3.0 <sup>1</sup>	
<b>Bare Ground In Herb Stratum</b> <u>60</u>				_____ 4- Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>	

Remarks:  
Recently seeded field; bare ground reflects conditions between rows.

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	10YR 3/3	90					Silty Clay Loam	
10-16		10					gravel	
10-16	10YR 4/2	85	10YR 3/3	5	C	M	Silty Clay Loam	
10-16		10					gravel	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain In Remarks)

Secondary Indicators (2 or more required)

- Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Fac-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/6/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 32  
 Regulator(s): AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Verboort silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>2</u> (A)	
2	_____	_____	_____	Total Number of Dominant	
3	_____	_____	_____	Species Across All Strata: <u>2</u> (B)	
4	_____	_____	_____	Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
<b>Woody/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
1	_____	_____	_____	Total % Cover of	Multiply by:
2	_____	_____	_____	OBL Species	x 1 = <u>0</u>
3	_____	_____	_____	FACW species	x 2 = <u>0</u>
4	_____	_____	_____	FAC Species	x 3 = <u>0</u>
5	_____	_____	_____	FACU Species	x 4 = <u>0</u>
	<u>0</u>	= Total Cover		UPL Species	x 5 = <u>0</u>
<b>Herb Stratum</b> (plot size: <u>5</u> )				Column Totals	<u>0</u> (A) <u>0</u> (B)
1	<u>30</u>	<u>X</u>	<u>FAC</u>	Prevalence Index = B/A = <u>#DIV/0!</u>	
2	<u>20</u>	<u>X</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b>	
3	<u>3</u>		<u>FAC</u>	1- Rapid Test for Hydrophytic Vegetation	
4	_____	_____	_____	<u>X</u> 2- Dominance Test is >50%	
5	_____	_____	_____	3- Prevalence Index is ≤ 3.0 <sup>1</sup>	
6	_____	_____	_____	4- Morphological Adaptations <sup>1</sup> (provide supporting	
7	_____	_____	_____	data in Remarks or on a separate sheet)	
8	_____	_____	_____	5- Wetland Non-Vascular Plants <sup>1</sup>	
	<u>53</u>	= Total Cover		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Woody Vine Stratum</b> (plot size: _____)				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless	
1	_____	_____	_____	disturbed or problematic.	
2	_____	_____	_____	<b>Hydrophytic</b>	
	<u>0</u>	= Total Cover		<b>Vegetation</b> Yes <u>X</u> No _____	
<b>Bare Ground in Herb Stratum</b> <u>50</u>				<b>Present?</b>	

Remarks: Recently seeded field; bare ground reflects conditions between rows.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 3/1	88	10YR 4/4	5	C	M	Silt Loam	Fine
0-6			10YR 3/6	5	C	M		Fine
0-6			10YR 3/6	2	C	PL		OR's
6-15	10YR 3/1	87	7.5YR 3/4	10	C	M	Silty Clay Loam	Medium-coarse
6-15			10YR 4/4	3	C	M		Fine

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquifer (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >15  
 Saturation Present? Yes  No  Depth (inches): >15  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: North Holladay Industrial Park City/County: Cornellus/Washington Sampling Date: 6/6/2013  
 Applicant/Owner: City of Cornellus State: OR Sampling Point: 33  
 Investigator(s): AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Verboort silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1				That are OBL, FACW, or FAC: <u>2</u> (A)	
2				Total Number of Dominant	
3				Species Across All Strata: <u>2</u> (B)	
4				Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
<b>Woody/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
1				Total % Cover of	Multiply by:
2				OBL Species	x 1 = <u>0</u>
3				FACW species	x 2 = <u>0</u>
4				FAC Species	x 3 = <u>0</u>
5				FACU Species	x 4 = <u>0</u>
	<u>0</u>	= Total Cover		UPL Species	x 5 = <u>0</u>
				Column Totals	<u>0</u> (A) <u>0</u> (B)
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index = B/A = <u>#DIV/0!</u>	
1	<u>Festuca arundinacea</u> <u>20</u>	<u>X</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2	<u>Poa annua</u> <u>10</u>	<u>X</u>	<u>FAC</u>	1- Rapid Test for Hydrophytic Vegetation	
3	<u>Echinochloa crus-galli</u> <u>1</u>		<u>FAC</u>	<u>X</u> 2- Dominance Test is >50%	
4				3- Prevalence Index is ≤ 3.0 <sup>1</sup>	
5				4- Morphological Adaptations <sup>1</sup> (provide supporting	
6				data in Remarks or on a separate sheet)	
7				5- Wetland Non-Vascular Plants <sup>1</sup>	
8				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
	<u>31</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless	
<b>Woody Vine Stratum</b> (plot size: _____)				disturbed or problematic.	
1				<b>Hydrophytic</b>	
2				Vegetation	
	<u>0</u>	= Total Cover		Present? Yes <u>X</u> No _____	
<b>Bare Ground in Herb Stratum</b> <u>70</u>					

Remarks: Recently seeded field; bare ground reflects conditions between rows.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/3	88	10YR 3/6	2	C	M	Silt Loam	Fine mottles; mixed matrix
0-16	10YR 3/2	10					Silt Loam	mixed matrix

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present?  
 Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/6/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 34  
 Investigator(s): TF/AH Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Verboort silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

Remarks:

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status
<b>Tree Stratum</b> (plot size: _____)			
1			
2			
3			
4			
	<u>0</u>	= Total Cover	
<b>Woody/Shrub Stratum</b> (plot size: _____)			
1			
2			
3			
4			
5			
	<u>0</u>	= Total Cover	
<b>Herb Stratum</b> (plot size: <u>5</u> )			
1	<u>15</u>	<u>X</u>	<u>FAC</u>
2	<u>10</u>	<u>X</u>	<u>(FAC)</u>
3	<u>5</u>		<u>FAC</u>
4	<u>1</u>		<u>FACU</u>
5			
6			
7			
8			
	<u>31</u>	= Total Cover	
<b>Woody Vine Stratum</b> (plot size: _____)			
1			
2			
	<u>0</u>	= Total Cover	

**Dominance Test worksheet:**

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)

**Prevalence Index Worksheet:**

Total % Cover of	Multiply by:	
OBL Species	x 1 =	<u>0</u>
FACW species	x 2 =	<u>0</u>
FAC Species	x 3 =	<u>0</u>
FACU Species	x 4 =	<u>0</u>
UPL Species	x 5 =	<u>0</u>
Column Totals	<u>0</u> (A)	<u>0</u> (B)

Prevalence Index = B/A = #DIV/0!

- Hydrophytic Vegetation Indicators:**
- \_\_\_\_\_ 1- Rapid Test for Hydrophytic Vegetation
  - X 2- Dominance Test is >50%
  - \_\_\_\_\_ 3-Prevalence Index is ≤ 3.0<sup>1</sup>
  - \_\_\_\_\_ 4-Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
  - \_\_\_\_\_ 5- Wetland Non-Vascular Plants<sup>1</sup>
  - \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Remarks: Recently seeded field; bare ground reflects conditions between rows.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-18	10YR 3/2	78	10YR 4/4	5	C	M	Silty Clay Loam	medium-fine
0-18			7.5YR 4/6	2	C	PL		OR's
0-18		15					gravel	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

Very little living vegetation, so very few living roots.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >18  
 Saturation Present? Yes  No  Depth (inches): >18  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/19/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 35  
 Investigator(s): TF/SE Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Woodburn silty clay loam NWI Classification: PEMC  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

VEGETATION - Use scientific names of plants.

Tree Stratum (plot size: _____)	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 _____	_____	_____	_____	Number of Dominant Species	
2 _____	_____	_____	_____	That are OBL, FACW, or FAC: <u>2</u> (A)	
3 _____	_____	_____	_____	Total Number of Dominant	
4 _____	_____	_____	_____	Species Across All Strata: <u>2</u> (B)	
	<u>0</u>	= Total Cover		Percent of Dominant Species	
Shrub/Stratum (plot size: _____)				That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1 _____	_____	_____	_____	Prevalence Index Worksheet:	
2 _____	_____	_____	_____	Total % Cover of _____ Multiply by: _____	
3 _____	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
4 _____	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
5 _____	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
	<u>0</u>	= Total Cover		FACU Species _____ x 4 = <u>0</u>	
Herb Stratum (plot size: <u>5</u> )				UPL Species _____ x 5 = <u>0</u>	
1 <u>Holcus lanatus</u>	<u>35</u>	<u>X</u>	<u>FAC</u>	Column Totals <u>0</u> (A) <u>0</u> (B)	
2 <u>Alopecurus pratensis</u>	<u>30</u>	<u>X</u>	<u>FAC</u>	Prevalence Index = B/A = <u>#DIV/0!</u>	
3 <u>Agrostis sp.</u>	<u>20</u>		<u>(FAC)</u>		
4 <u>Juncus effusus</u>	<u>10</u>		<u>FACW</u>		
5 <u>Phalaris arundinacea</u>	<u>5</u>		<u>FACW</u>		
6 <u>Lotus corniculatus</u>	<u>5</u>		<u>FAC</u>		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
	<u>105</u>	= Total Cover			
Woody Vine Stratum (plot size: _____)				Hydrophytic Vegetation Indicators:	
1 _____	_____	_____	_____	1- Rapid Test for Hydrophytic Vegetation	
2 _____	_____	_____	_____	<u>X</u> 2- Dominance Test is >50%	
	<u>0</u>	= Total Cover		3- Prevalence Index is ≤ 3.0 <sup>1</sup>	
Bare Ground in Herb Stratum <u>0</u>				4- Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
Remarks:				5- Wetland Non-Vascular Plants <sup>1</sup>	
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
				Hydrophytic Vegetation Present? Yes <u>X</u> No _____	

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 3/2	90	7.5YR 4/4	7	C	M	Silty Clay Loam	Fine
0-8			7.5YR 4/6	3	C	PL		OR's
8-16	10YR 3/2	85	7.5YR 4/4	5	C	M	Silty Clay Loam	Fine-medium
8-16	10YR 4/2	10					Silty Clay Loam	Dark, burnt material in the 8-16 layer

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Hislosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Hislic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

0-8 inches - 3% ORs 7.5YR 4/6.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >16  
 Saturation Present? Yes  No  Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present?

Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/19/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 36  
 Investigator(s): TF/SE Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Woodburn silty clay loam NWI Classification: PEMC

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

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

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

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1 _____	_____	_____	_____	That are OBL, FACW, or FAC: <u>3</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant	
3 _____	_____	_____	_____	Species Across All Strata: <u>4</u> (B)	
4 _____	_____	_____	_____	Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>75%</u> (A/B)	
<b>Woody/Shrub Stratum</b> (plot size: <u>5</u> )				<b>Prevalence Index Worksheet:</b>	
1 <u>Prunus sp.</u>	<u>1</u>	<u>X</u>	<u>(FAC)</u>	Total % Cover of	Multiply by:
2 _____	_____	_____	_____	OBL Species _____	x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species _____	x 2 = <u>0</u>
4 _____	_____	_____	_____	FAC Species _____	x 3 = <u>0</u>
5 _____	_____	_____	_____	FACU Species _____	x 4 = <u>0</u>
	<u>1</u>	= Total Cover		UPL Species _____	x 5 = <u>0</u>
<b>Herb Stratum</b> (plot size: <u>5</u> )				Column Totals	<u>0</u> (A) <u>0</u> (B)
1 <u>Holcus lanatus</u>	<u>50</u>	<u>X</u>	<u>FAC</u>	Prevalence Index = B/A = <u>#DIV/0!</u>	
2 <u>Agrostis sp.</u>	<u>40</u>	<u>X</u>	<u>(FAC)</u>	<b>Hydrophytic Vegetation Indicators:</b>	
3 <u>Galium aparine</u>	<u>30</u>	<u>X</u>	<u>FACU</u>	1- Rapid Test for Hydrophytic Vegetation	
4 <u>Bromus hordeaceus</u>	<u>15</u>	_____	<u>FACU</u>	<u>X</u> 2- Dominance Test is >50%	
5 <u>Alopecurus pratensis</u>	<u>10</u>	_____	<u>FAC</u>	3- Prevalence Index is ≤ 3.0 <sup>1</sup>	
6 _____	_____	_____	_____	4- Morphological Adaptations <sup>1</sup> (provide supporting	
7 _____	_____	_____	_____	data in Remarks or on a separate sheet)	
8 _____	_____	_____	_____	5- Wetland Non-Vascular Plants <sup>1</sup>	
	<u>145</u>	= Total Cover		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Woody Vine Stratum</b> (plot size: _____)				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless	
1 _____	_____	_____	_____	disturbed or problematic.	
2 _____	_____	_____	_____	<b>Hydrophytic</b>	
	<u>0</u>	= Total Cover		<b>Vegetation</b> Yes <u>X</u> No _____	
Are Ground in Herb Stratum <u>0</u>				<b>Present?</b>	
Remarks:					

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/3	100					Silt Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C8)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X      Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X      Depth (inches): >16  
 Saturation Present? Yes \_\_\_\_\_ No X      Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present?

Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Very dry relative to wetland plot.

**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

Project/Site: North Holladay Industrial Park City/County: Cornellus/Washington Sampling Date: 6/19/2013  
 Applicant/Owner: City of Cornellus State: OR Sampling Point: 37  
 Investigator(s): TF/SE Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Huberly silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1 _____	_____	_____	_____	That are OBL, FACW, or FAC: <u>1</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant	
3 _____	_____	_____	_____	Species Across All Strata: <u>1</u> (B)	
4 _____	_____	_____	_____	Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
<b>Log/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
1 _____	_____	_____	_____	Total % Cover of _____ Multiply by:	
2 _____	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
3 _____	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
4 _____	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
5 _____	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Column Totals <u>0</u> (A) <u>0</u> (B)	
1 <u>Festuca arundinacea</u>	<u>80</u>	<u>X</u>	<u>FAC</u>	Prevalence Index = B/A = <u>#DIV/0!</u>	
2 <u>Poa annua</u>	<u>10</u>		<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b>	
3 <u>Daucus carota</u>	<u>2</u>		<u>FACU</u>	1- Rapid Test for Hydrophytic Vegetation	
4 <u>Matricaria discoides</u>	<u>1</u>		<u>FACU</u>	<u>X</u> 2- Dominance Test is >50%	
5 _____	_____	_____	_____	3- Prevalence Index is ≤ 3.0 <sup>1</sup>	
6 _____	_____	_____	_____	4- Morphological Adaptations <sup>1</sup> (provide supporting	
7 _____	_____	_____	_____	data in Remarks or on a separate sheet)	
8 _____	_____	_____	_____	5- Wetland Non-Vascular Plants <sup>1</sup>	
	<u>93</u>	= Total Cover		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Woody Vine Stratum</b> (plot size: _____)				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless	
1 _____	_____	_____	_____	disturbed or problematic.	
2 _____	_____	_____	_____	<b>Hydrophytic</b>	
	<u>0</u>	= Total Cover		Vegetation Present? Yes <u>X</u> No _____	
bare Ground in Herb Stratum <u>0</u>					
Remarks:					

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10YR 3/2	100					Silt Loam	
3-8	10YR 3/1	77	7.5YR 3/4	20	C	M	Silt Loam	Fine-medium
3-8			7.5YR 4/6	3	C	PL		OR's
8-15	10YR 3/2	100					Silt Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (Inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >15  
 Saturation Present? Yes  No  Depth (inches): >15  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Project/Site: North Holladay Industrial Park City/County: Cornellus/Washington Sampling Date: 6/19/2013  
 Applicant/Owner: City of Cornellus State: OR Sampling Point: 38  
 Investigator(s): TF/SE Section, Township, Range: Section 33, T 1 North, R 3 West  
 Elevation (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Huberly silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

Remarks:

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1				That are OBL, FACW, or FAC: <u>2</u> (A)	
2				Total Number of Dominant	
3				Species Across All Strata: <u>2</u> (B)	
4				Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
<b>Log/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
1				Total % Cover of	Multiply by:
2				OBL Species	x 1 = <u>0</u>
3				FACW species	x 2 = <u>0</u>
4				FAC Species	x 3 = <u>0</u>
5				FACU Species	x 4 = <u>0</u>
	<u>0</u>	= Total Cover		UPL Species	x 5 = <u>0</u>
<b>Herb Stratum</b> (plot size: <u>5</u> )				Column Totals	<u>0</u> (A) <u>0</u> (B)
1	<u>Festuca arundinacea</u>	<u>75</u>	<u>X</u>	Prevalence Index = B/A = <u>#DIV/0!</u>	
2	<u>Poa sp.</u>	<u>20</u>	<u>X</u>	<b>Hydrophytic Vegetation Indicators:</b>	
3	<u>Taraxacum officinale</u>	<u>1</u>		1- Rapid Test for Hydrophytic Vegetation	
4	<u>Matricaria discolor</u>	<u>1</u>		<u>X</u> 2- Dominance Test is >50%	
5				3- Prevalence Index is ≤ 3.0 <sup>1</sup>	
6				4- Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
7				5- Wetland Non-Vascular Plants <sup>1</sup>	
8				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
		<u>97</u>	= Total Cover	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
1					
2					
		<u>0</u>	= Total Cover		
bare Ground in Herb Stratum <u>15</u>					

Remarks:

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (molst)	%	Color (molst)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 3/3	60	7.5YR 4/6	1	C	PL	Silt Loam	
0-8	10YR 3/2	38	7.5YR 4/6	1	C	M	Silt Loam	Medium, plow layer
8-16	10YR 3/3	90					Silt Loam	
8-16	10YR 3/2	9	7.5YR 4/6	1	C	M	Silt Loam	Fine-medium

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Not enough ORs

**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/19/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 39  
 Investigator(s): TF/SE Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Aloha silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

**VEGETATION - Use scientific names of plants.**

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1				That are OBL, FACW, or FAC: <u>2</u> (A)	
2				Total Number of Dominant	
3				Species Across All Strata: <u>2</u> (B)	
4				Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
<b>Shrub/Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
1				Total % Cover of _____ Multiply by:	
2				OBL Species _____ x 1 = <u>0</u>	
3				FACW species _____ x 2 = <u>0</u>	
4				FAC Species _____ x 3 = <u>0</u>	
5				FACU Species _____ x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Column Totals <u>0</u> (A) <u>0</u> (B)	
1	<u>60</u>	<u>X</u>	<u>FAC</u>	Prevalence Index = B/A = <u>#DIV/0!</u>	
2	<u>30</u>	<u>X</u>	<u>(FAC)</u>	<b>Hydrophytic Vegetation Indicators:</b>	
3	<u>10</u>		<u>FACU</u>	1- Rapid Test for Hydrophytic Vegetation	
4				<u>X</u> 2- Dominance Test is >50%	
5				3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
6				4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
7				5- Wetland Non-Vascular Plants <sup>1</sup>	
8				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
	<u>100</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
1					
2					
	<u>0</u>	= Total Cover			
Bare Ground in Herb Stratum <u>0</u>					

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 3/2	98	7.5	2	C	PL	Silt Loam	
6-16	10YR 3/2	93	7.5YR 4/6	5	C	M	Silt Loam	Fine
6-16			7.5YR 4/6	2	C	PL		OR's

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histlic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histlic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >16  
 Saturation Present? Yes  No  Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

Project/Site: North Holladay Industrial Park City/County: Cornelius/Washington Sampling Date: 6/19/2013  
 Applicant/Owner: City of Cornelius State: OR Sampling Point: 40  
 Investigator(s): TF/SE Section, Township, Range: Section 33, T 1 North, R 3 West  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Aloha silty clay loam NWI Classification: None  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks)  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y  
 Are vegetation \_\_\_\_\_ Soil \_\_\_\_\_ or Hydrology \_\_\_\_\_ naturally problematic? If needed, explain any answers in Remarks.)

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

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

**VEGETATION - Use scientific names of plants.**

Tree Stratum (plot size: _____)	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1 _____				Number of Dominant Species	
2 _____				That are OBL, FACW, or FAC: <u>1</u> (A)	
3 _____				Total Number of Dominant	
4 _____				Species Across All Strata: <u>1</u> (B)	
	<u>0</u>	= Total Cover		Percent of Dominant Species	
Woody/Shrub Stratum (plot size: _____)				That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1 _____				Prevalence Index Worksheet:	
2 _____				Total % Cover of _____ Multiply by:	
3 _____				OBL Species _____ x 1 = <u>0</u>	
4 _____				FACW species _____ x 2 = <u>0</u>	
5 _____				FAC Species _____ x 3 = <u>0</u>	
	<u>0</u>	= Total Cover		FACU Species _____ x 4 = <u>0</u>	
Herb Stratum (plot size: <u>5</u> )				UPL Species _____ x 5 = <u>0</u>	
1 <u>Festuca arundinacea</u>	<u>70</u>	<u>X</u>	<u>FAC</u>	Column Totals	<u>0</u> (A) <u>0</u> (B)
2 <u>Poa annua</u>	<u>15</u>		<u>FAC</u>	Prevalence Index = B/A = <u>#DIV/0!</u>	
3 <u>Daucus carota</u>	<u>2</u>		<u>FACU</u>	Hydrophytic Vegetation Indicators:	
4 <u>Vulpia myuros</u>	<u>1</u>		<u>FACU</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
5 <u>Matricaria discolor</u>	<u>1</u>		<u>FACU</u>	_____ <u>X</u> 2- Dominance Test is >50%	
6 _____				_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
7 _____				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
8 _____				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
	<u>89</u>	= Total Cover		_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
Woody Vine Stratum (plot size: _____)				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1 _____				Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
2 _____					
	<u>0</u>	= Total Cover			
Jare Ground in Herb Stratum <u>10</u>					
Remarks:					

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/2	100					Silt Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

**Remarks:**

7 inches down is an inclusion the size of a quarter width - 10YR 3/2 80% 7.5YR 3/2 20% C M Silt Loam.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one required; check all that apply)**

**Secondary Indicators (2 or more required)**

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No X      Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X      Depth (inches): >16  
 Saturation Present? Yes \_\_\_\_\_ No X      Depth (inches): >16  
 (includes capillary fringe)

**Wetland Hydrology Present?**  
 Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None.

**Remarks:**

# **Appendix C**

## **Site Photos**



**Photo A:**

View of the southwest boundary of Wetland E.



**Photo B:**

View of the southern wetland boundary along the eastern portion of Wetland F.

#5095  
7/25/13



Pacific Habitat Services, Inc.  
9450 SW Commerce Circle, Suite 180  
Wilsonville, OR 97070

Photo documentation for the North Holladay Industrial Park Project  
in Cornelius, Oregon  
Both photos taken June 11, 2013.



**Photo C:**

Looking downstream along Council Creek where it defines the northern boundary of Wetland F.

**Photo D:**

View to the east along the southern boundary of Wetland D.



#5095  
7/25/13



Pacific Habitat Services, Inc.  
9450 SW Commerce Circle, Suite 180  
Wilsonville, OR 97070

Photo documentation for the North Holladay Industrial Park Project  
in Cornelius, Oregon  
Both photos taken June 11, 2013.



Photo E:  
View to the north into  
Wetland G

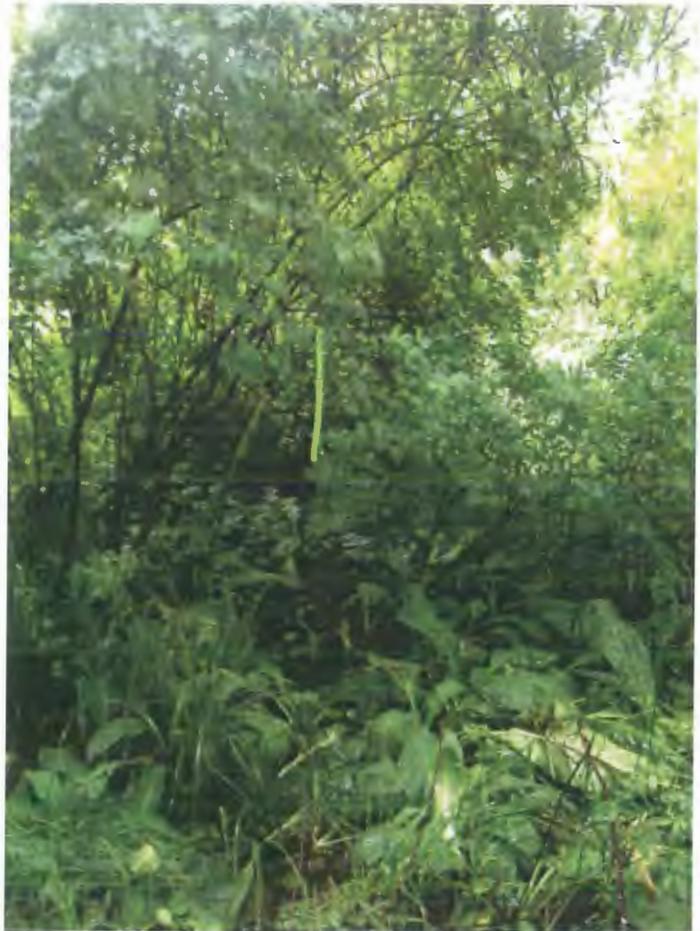


Photo F:  
View to the southwest of streamside wetlands  
in the eastern portion of Wetland G.

#5095  
7/25/13



Pacific Habitat Services, Inc.  
9450 SW Commerce Circle, Suite 180  
Wilsonville, OR 97070

Photo documentation for the North Holladay Industrial Park Project  
in Cornelius, Oregon  
Photo E taken June 11, 2013; Photo F taken June 13, 2013.



**Photo G:**

View to the southwest of the upland to wetland transition along the boundary of Wetland K.



**Photo H:**

View to the southeast across the channel of Council Creek as seen from the north-central portion of Wetland L. Blue flag in photo delineates the ordinary high water line of the creek.

#5095  
7/25/13



Pacific Habitat Services, Inc.  
9450 SW Commerce Circle, Suite 180  
Wilsonville, OR 97070

Photo documentation for the North Holladay Industrial Park Project  
in Cornelius, Oregon

Photo G taken June 11, 2013; Photo H taken June 13, 2013.



**Photo I:**

View to the east including the southern (onsite) limits of Wetland L and Council Creek.

**Photo J:**

Wetland H, as seen from just southwest of the wetland. Yellow flags denote Sample Points 29 and 30.



#5095  
7/25/13



Pacific Habitat Services, Inc.  
9450 SW Commerce Circle, Suite 180  
Wilsonville, OR 97070

Photo documentation for the North Holladay Industrial Park Project  
in Cornelius, Oregon

Photo I taken June 19, 2013; Photo J taken June 6, 2013.



**Photo K:**  
Western limits of  
Wetland C, and  
adjoining upland to the  
west.

**Photo L:**  
Wetland D as seen  
from just east of the  
wetland boundary.



#5095  
7/25/13



Pacific Habitat Services, Inc.  
9450 SW Commerce Circle, Suite 180  
Wilsonville, OR 97070

Photo documentation for the North Holladay Industrial Park Project  
in Cornelius, Oregon  
Both photos taken June 19, 2013.

# **Appendix D**

## **Wetland Definitions and Methodology and References**

# **WATERS OF THE STATE AND WETLAND DEFINITION AND CRITERIA**

## **Regulatory Jurisdiction**

Wetlands and water resources in Oregon are regulated by the Oregon Department of State Lands (DSL) under the Removal-Fill Law (ORS 196.800-196.990) and by the U.S. Army Corps of Engineers (COE) through Section 404 of the Clean Water Act.

The primary source documents for wetland delineations within Oregon is the *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (U.S. Army Corps of Engineers, 2010), which are required by both DSL and COE.

## **Waters of This State and Wetland Definition**

Waters of This State are defined as “all natural waterways, tidal and non-tidal bays, intermittent streams, constantly flowing streams, lakes, wetlands, that portion of the Pacific Ocean that is in the boundaries of this state, all other navigable and nonnavigable bodies of water in this state and those portions of the ocean shore ...” (DSL, 2009).

Wetlands are defined as “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” (DSL 2009).

## **Wetland Criteria**

Based on the above definition, three major factors characterize a wetland: hydrology, substrate, and biota.

### **Wetland Hydrology**

Wetland hydrology is related to duration of saturation, frequency of saturation, and critical depth of saturation. The 1987 manual defines wetland hydrology as inundation or saturation within a major portion of the root zone (usually above 12 inches), typically for at least 12.5% of the growing season. The wetland hydrology criterion can be met, however, if saturation within the major portion of the root zone is present for only 5% of the growing season, depending on other evidence.

The growing season is defined as the portion of the year when soil temperatures at 12.0 inches below the soil surface are higher than biological zero (41 degrees Fahrenheit, 5 degrees Celsius), but also allows approximation from frost free days, based on air temperature. The growing season for any given site or location is determined from US Natural Resources Conservation Service, (formerly Soil Conservation Service) data and information.

Wetland hydrologic indicators include the following: visual observation of inundation or saturation, watermarks, drift lines, sediment deposits, and/or oxidized rhizospheres with living roots. Oxidized rhizospheres are defined as yellowish-red zones around the roots and rhizomes of some plants that grow in frequently saturated soils. Other indicators of hydrology, including algal mats or crust, iron deposits, surface soil cracks, sparsely vegetated concave surface, salt crust, aquatic invertebrates, hydrogen sulfide odor, reduced iron, iron reduction in tilled soils, and stunted or stressed plants can also be used to determine the presence of wetland hydrology.

**Wetland Substrate (Soils)**

Most wetlands are characterized by hydric soils. Hydric soils are those that are ponded, flooded, or saturated for long enough during the growing season to develop anaerobic conditions. Periodic saturation of soils causes alternation of reduced and oxidized conditions, which leads to the formation of redoximorphic features (gleying and mottling). Mineral hydric soils will be either gleyed or will have bright mottles and/or low matrix chroma. The redoximorphic feature known as gley is a result of greatly reduced soil conditions, which result in a characteristic grayish, bluish or greenish soil color. The term mottling is used to describe areas of contrasting color within a soil matrix. The soil matrix is the portion of the soil layer that has the predominant color. Soils that have brightly colored mottles and a low matrix chroma are indicative of a fluctuating water table.

Hydric soil indicators include: organic content of greater than 50% by volume, and/or presence of redoximorphic features and dark soil matrix, as determined by the use of a Munsell Soil Color Chart. This chart establishes the chroma, value and hue of soils based on comparison with color chips. Mineral hydric soil must meet one of the 16 definitions for hydric soil indicators, or be classified as a "problem soil" in the Interim Regional Supplement.

**Wetland Biota (Vegetation)**

Wetland biota is defined as hydrophytic vegetation. A hydrophyte is a plant species that is capable of growing in substrates that are periodically deficient in oxygen as a result of saturated soil conditions. The U.S. Fish and Wildlife Service, in the *National List of Plant Species that Occur in Wetlands*, has established five basic groups of vegetation based on their frequency of occurrence in wetlands. These categories, referred to as the "wetland indicator status", are as follows: obligate wetland plants (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and obligate upland (UPL). Table 1 gives a definition of the plant indicator codes.

**Table 1. Description of Wetland Plant Indicator Status Codes**

Indicator Code	Status
OBL	Obligate wetland. Estimated to occur almost exclusively in wetlands (>99%)
FACW	Facultative wetland. Estimated to occur 67-99% of the time in wetlands.
FAC	Facultative. Occur equally in wetlands and non-wetlands (34-66%).
FACU	Facultative upland. Usually occur in non-wetlands (67-99%).
UPL	Obligate upland. Estimated to occur almost exclusively in non-wetlands (>99%). If a species is not assigned to one of the four groups described above it is assumed to be obligate upland.
NI	Has not yet received a wetland indicator status, but is probably not obligate upland.

Observations of hydrology, soils, and vegetation, were made using the "Routine On-site" delineation method as defined in the 1987 manual and the Interim Regional Supplement for areas that were not currently in agricultural production. One-foot diameter soil pits were excavated to 20 inches and soil profiles were examined for hydric soil and wetland hydrology field indicators. In addition, a visual absolute-cover estimate of the dominant species of the plant community was performed using soil pit locations as a center of reference. Dominant plant species are based on estimates of absolute cover for herbaceous, and shrub species within a 5 foot radius of the sample point, and basal area cover for tree and woody vine species within a 30 foot radius of the sample point. Plant species in each vegetative layer, which are estimated at less than 20% of the total cover, are not considered to be dominant. The wetland indicator status is then used to determine if there is an overall dominance (greater than 50%) of wetland or upland plant species. If less than 50% of the dominant species are hydrophytic, then the prevalence index may be used to determine if the subdominant species are hydrophytic. If the prevalence index is less than or equal to 3, hydrophytic vegetation criterion is met.

During data collection, the soil profiles were examined for hydric soil and wetland hydrology field indicators. Plant species and cover were recorded. Data was recorded on standard data sheets which contain the information specified in the 1987 Corps Manual and the Interim Regional Supplement.