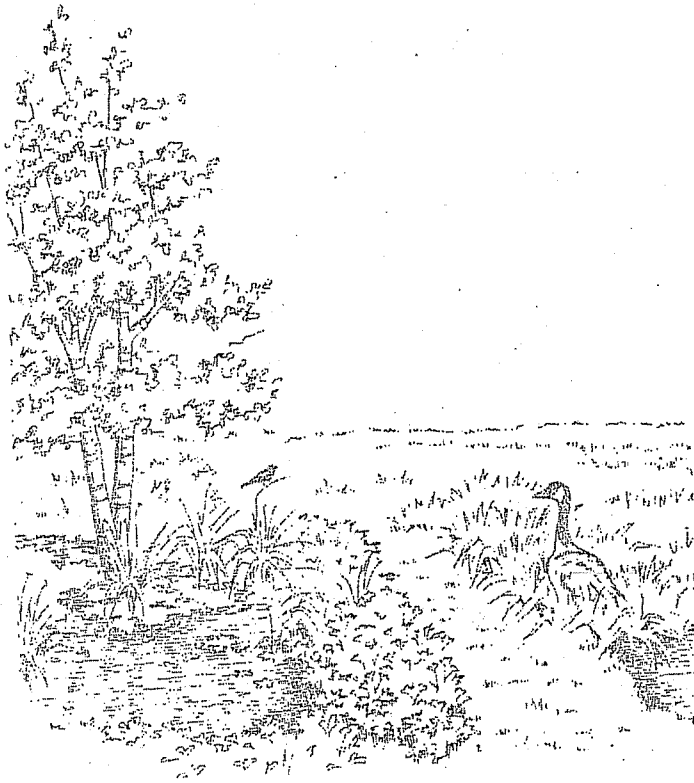


# City of Cornelius Local Wetlands Inventory



Adopted by the City of Cornelius December 2002



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## 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 it's 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 it's way to it's 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 it's 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 (hydrophytes), 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 its 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;

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.

## 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. (7)

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.

## CITY OF CORNELIUS WETLAND DETERMINATION FORM

Project: City of Cornelius	Site: CC-1	Plot: CC-1-1
Investigators: KV, JG (DSL)	Watershed: Council Creek	Date: May 8, 2002
County: Washington	Township/Range: 1N 3W	Section: 33DA

### HYDROLOGY Criteria Met: YES

Primary Indicators	Secondary Indicators
Inundated (Yes/No): No	Water Marks:
Depth of Inundation:	Drift Lines:
Depth of Free Water: 5 inches	Oxidized Root Channels:
Depth of Saturation: Surface (upper 12 inches)	Sediment Deposits:
Drainage Patterns:	Other:

### SOILS Criteria Met: YES

**Mapped Series:** Cove Silty Clay Loam

**Hydric Soil:** Yes

**Classification:** Fine, montmorillonitic, mesic, Vertic Haplaquolls

**Drainage Class:** Poorly drained

Depth (Inches)	Matrix Color	Soil Texture*	Redox Concentrations	Redox Depletions	Other Hydric Soil Field Indicators	Comments
0-4	10YR 4/1		7.5 YR 3/4	m/m/p		
4-12	10YR 4/1		7.5 YR 3/4	m/m/p	Redox feature w/10"	
					Gleyed/low chroma	

SD=Sand, SDL=Sandy Loam, L=Loam, SDCL=Sandy Clay Loam, S=Silt, SCL=Silty Clay Loam, CL=Clay Loam, C=Clay.

### VEGETATION Criteria Met: YES

Stratum (Percentage)	Status	Percent (%) Cover
Tree		
Shrub		
Herbaceous (100%)	<i>Aleopecurus pratensis</i> <i>Juncus effusus</i> <i>Holcus lanatos</i> <i>Festuca arundenacea</i> <i>Rumex crispus</i>	FACW 20% FACW 25% FAC 30% FAC 25% FAC Trace
Woody Vine (0%)		

**Percent of dominant species FAC, FACW, or OBL: 3/4 75%**

**COMMENTS:** Council Creek and it's floodplain form the northern City and urban growth boundary for Cornelius. This site plot is located in the stream reach between N. 10<sup>th</sup> Avenue and N. 19<sup>th</sup> Avenue, north of Council Bluff Mobile Home Park. The Council Creek corridor (CC-1) includes tree covered sections and open wetland/riparian areas from N. 10<sup>th</sup> Avenue to the confluence with Jobes Ditch, the east City boundary.

## 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

2  
00-0138

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 X 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>Alnus incana</u>	<u>FACW</u>	<u>20</u>
2.	_____			②	<u>Juncus effusus</u>	<u>FACW</u>	<u>25</u>
3.	_____			③	<u>Stalpus lanatus</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 coccineus</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 X NO \_\_\_\_\_

SOILS

Map Unit Name: Cove City Clay Loam Drainage Class: poorly drained  
 Taxonomy: Fine, montmorillonitic On Hydric Soils List? Y X N  
Ventic 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 X 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 X 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 X NO \_\_\_\_\_ Comments: Between creek and PEM wetland is a PSS wetland

**CITY OF CORNELIUS**

**OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY**

Date: May 8, 2002, April 2000, November 5, 1999

Wetland Identification: CC-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 - 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 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.

## 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>Agrostic 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**

**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 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, JG  
 Plant Community: \_\_\_\_\_ Plot # 1  
 Plot location: swale 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>Alpcecurus pratensis</u>	<u>FACW</u>	<u>5%</u>
2. _____			② <u>Agrostis tenuis</u>	<u>FAC</u>	<u>25%</u>
3. _____			③ <u>Festuca pratensis</u>	<u>FACW</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-): 43 66%  
 Other Notable Species: \_\_\_\_\_  
 Criteria Met? YES  NO

SOILS

Map Unit Name: Verboort Silty Clay loam Drainage Class: poorly drained  
 Taxonomy: Fine, mixed, mic, typic Argialloils 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:  
 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: \_\_\_\_\_ 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: Swale that has been altered to contain residential run off. Fill slopes on either side of drainage.

# CITY OF CORNELIUS WETLAND DETERMINATION FORM

Project: City of Cornelius	Site: CCDU-1	Plot: CCDU-1-2
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>Phalaris arundinace</i> FACW 100%

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

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

**Mapped Series:** Verboort Silty Clay Loam  
**Classification:** Fine, mixed, mesic, Typic Argialbolls

**Hydric Soil List:** Yes  
**Drainage Class:** Poorly drained

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

**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: X  
 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. This part of swale not disturbed as much 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, JB  
 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
<u>Tree Stratum</u>			<u>Herb Stratum</u>		
Total Cover: _____			Total Cover: <u>100%</u>		
1. _____			1. _____		
2. _____			2. <u>Phalaris arundinacea</u> <u>Frew</u> <u>100</u>		
3. _____			3. _____		
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-): 100%  
 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>5-9</u>		<u>10YR 3/2 + 4/2</u>	<u>(80% 3/2)</u>			
<u>9-12</u>		<u>10YR 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  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:

- |   |   |
|---|---|
| <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 run off. This part of swale not disturbed as upper part of swale (see plot)

## 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 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 as significant, per Section B, "IN" Test.



## CITY OF CORNELIUS

### OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY

**Date:** May 8, 2002

**Wetland Identification:** JD-1

**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 - 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				

Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality
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, Jobs 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 Jobs 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: <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><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.

## 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>Spirea 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> 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



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 X 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>100%</u>				Total Cover: <u>100%</u>			
1.	<u>Fraxinus latifolia</u>	<u>FACW</u>	<u>100</u>	1.	<u>Phalaris arundinacea</u>	<u>FACW</u>	<u>70</u>
2.	_____	_____	_____	2.	<u>Mentha arvensis</u>	<u>FACW</u>	<u>5</u>
3.	_____	_____	_____	3.	<u>Rumex crispus</u>	<u>FACW</u>	<u>5</u>
4.	_____	_____	_____	4.	<u>Alpeyruca pratensis</u>	<u>FACW</u>	<u>20</u>
Sapling/Shrub Stratum				_____			
Total Cover: _____				_____			
1.	_____	_____	_____	5.	_____	_____	_____
2.	_____	_____	_____	6.	_____	_____	_____
3.	_____	_____	_____	7.	_____	_____	_____
4.	_____	_____	_____	8.	_____	_____	_____
5.	_____	_____	_____	9.	_____	_____	_____
				10.	_____	_____	_____

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

SOILS

Map Unit Name: Wapato Silty Clay Loam Drainage Class: poorly drained  
 Taxonomy: Fine-silty, mixed, medic On Hydric Soils List? Y X 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>C/m/p</u>		
<u>3-6</u>		<u>2.5Y 4/2</u>	<u>10YR 3/6</u>	<u>C/m/p</u>	<u>SANDY LENS</u>	
<u>6-12</u>		<u>10YR 3/2</u>	<u>10YR 4/6</u>	<u>C/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 X 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 X 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 X NO \_\_\_\_\_ Comments: soil moist throughout profile  
Compared and vicinity to Division delineation file WD 01-0004.  
wetland 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><input type="checkbox"/> <i>diverse</i> wildlife habitat</li> <li><input checked="" type="checkbox"/> <i>intact</i> fish habitat</li> <li><input type="checkbox"/> <i>intact</i> water quality</li> <li><input checked="" type="checkbox"/> <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 the criteria for consideration as significant, per Section B, “IN” Test.**

## 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, JG  
 Plant Community: \_\_\_\_\_ Plot # \_\_\_\_\_  
 Plot location: West End of Swale and Locatia North of Tuolatin River  
 Do normal environ. conditions exist? Y N Explain: \_\_\_\_\_  
 Has Veg. \_\_\_\_\_ Soil \_\_\_\_\_ Hydrology \_\_\_\_\_ been significantly disturbed?  
 Explain: \_\_\_\_\_

VEGETATION		
Dominant Species	Status	% Cover
<u>Tree Stratum</u>		
Total Cover: <u>10%</u>		
1. <u>Fraxinus latifolia</u>	<u>FACW</u>	<u>100</u>
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
<u>Sapling/Shrub Stratum</u>		
Total Cover: <u>18%</u>		
1. <u>Rosa sp</u>	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
<u>Herb Stratum</u>		
Total Cover: <u>100%</u>		
1. _____	_____	_____
2. <u>Phalaris arundinacea</u>	<u>FACW</u>	<u>100</u>
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____
7. _____	_____	_____
8. _____	_____	_____
9. _____	_____	_____
10. _____	_____	_____

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

Map Unit Name: Cove Silty Clay Loam Drainage Class: POORLY DRAINED  
 Taxonomy: ENC, montmorillonitic, mesic On Hydric Soils List? Y X N \_\_\_\_\_  
Vertic Haplaquoll

Depth	Horizon	Matrix Color	Redox Concentrations*	Redox Depletions*	Texture	Structure
<u>0-12</u>		<u>2.5y 2.5/1</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 X NO \_\_\_\_\_  
 \* abund./size/contrast/color/location (matrix or pores/peds)

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 X 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 X NO \_\_\_\_\_ Comments: North portion private property - offsite. Verification narrows to culvert due to top dominated by Phalaris arundinacea. 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**

**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 salmoids". 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 daylights 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: MAINTENANCE FIELD BY SCHOOL  
 Do normal environ. conditions exist? Y  N  Explain: MAY BE PAST DISTURBANCE  
 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>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>
<u>Sapling/Shrub Stratum</u>			5. <u>Trientalis pratensis</u>	<u>FACU</u>	<u>5</u>
Total Cover: _____			6. <u>Carex sp.</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>C1/F1/2</u>		
<u>5-14</u>		<u>2.5Y 2.5/1</u>				

Hydric Soil Indicators:

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Reducing Conditions (tests positive)
- Gleyed / Low chroma
- Redox. features (w/in 10")
- Criteria Met? YES  NO
- 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: \_\_\_\_\_
- \* 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

<u>Tree Stratum</u>	<u>Shrub Stratum</u>	<u>Herbaceous Stratum</u>
		<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

<u>Depth (In.)</u>	<u>Matrix Color</u>	<u>Redox Concentrations</u>	<u>Redox Depletions</u>	<u>Texture*/Structure</u>
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: <u>moist e12"</u>	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.

County: Washington Date: 5/8/02 File # TID-1  
 Project/Contact: \_\_\_\_\_ Det. by: KV, JG  
 Plant Community: \_\_\_\_\_ Plot # \_\_\_\_\_  
 Plot location: MINOR 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	
<u>Tree Stratum</u>			
Total Cover: _____			
1. _____			
2. _____			
3. _____			
4. _____			
<u>Sapling/Shrub Stratum</u>			
Total Cover: _____			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
<u>Herb Stratum</u>			
Total Cover: <u>100%</u>			
① <u>Typha latifolia</u>	<u>OBL</u>	<u>25</u>	
② <u>Phalaris arundinacea</u>	<u>FACW</u>	<u>25</u>	
③ <u>Juncus effusus</u>	<u>FACW</u>	<u>15</u>	
④ <u>Trifolium pratense</u>	<u>FACU</u>	<u>5</u>	
⑤ <u>Festuca arundinacea</u>	<u>FAC-</u>	<u>15</u>	
⑥ <u>Trifolium repens</u>	<u>FAC-</u>	<u>5</u>	
⑦ <u>Daucus carota</u>	<u>NAL</u>	<u>TR</u>	
⑧ <u>Rumex acetosella</u>	<u>FACU</u>	<u>TR</u>	
⑨ <u>Rumex crispus</u>	<u>FACU</u>	<u>TR</u>	
⑩ <u>Cyperus micropodus</u>	<u>OBL</u>	<u>5</u>	
○ <u>Holcus lanatus</u>	<u>FAC</u>	<u>15</u>	
○ <u>Hypochaeris radicata</u>	<u>FACU</u>	<u>TR</u>	

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

Map Unit Name: Verbeek Silty Clay Loam Drainage Class: poorly drained  
 Taxonomy: Bw, mixed, mic typic Argialbolls On Hydric Soils List? Y X 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 X 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 0/2" 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 X NO   

DETERMINATION  
 WETLAND? YES X 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	<b>Wetlands that score “Yes” in any of the following categories do not proceed to Section B.</b>
	X	Wetlands artificially created entirely from upland that is: <ol 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> </ol>
	X	Documented as being contaminated by hazardous substances, materials or wastes (“Hazmat sites”).

**B. “IN” Test**

Y	N	<b>Wetlands that meet ONE OR MORE of the following criteria are LSWs.</b>
X		Wetlands that score the highest rank (stated in italics below) for any of the four ecological functions addressed by OFWAM or equivalent methodology:  _____ <i>diverse</i> wildlife habitat _____ <i>intact</i> fish habitat _____ <i>intact</i> water quality _____ <input checked="" type="checkbox"/> <i>intact</i> hydrologic control
	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.**

**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	Texture*/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.

**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**

TREES	SHRUBS	VINES	HERBS
			<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

County: Washington Date: 5/8/02 File # TD-2  
Project/Contact: \_\_\_\_\_ Det. by: KV, JG  
Plant Community: \_\_\_\_\_ Plot # \_\_\_\_\_  
Plot location: EAST SIDE N POND/D AREA  
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>100%</u>		
1. _____			1. _____		
2. _____			2. <u>Agrostis stolonifera</u>	<u>FAC+</u>	<u>10</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>
<u>Sapling/Shrub Stratum</u>			5. <u>Tritolium pratense</u>		
Total Cover: _____			6. <u>Alopecurus pratensis</u>		
1. _____			7. <u>Sonchus tenax</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: Verboort Silty Clay Loam Drainage Class: poorly drained  
Taxonomy: Ent, 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:

- 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: \_\_\_\_\_ 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-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	<b>Wetlands that score “Yes” in any of the following categories do not proceed to Section B.</b>
	X	Wetlands artificially created entirely from upland that is: <ol 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> </ol>
	X	Documented as being contaminated by hazardous substances, materials or wastes (“Hazmat sites”).

**B. “IN” Test**

Y	N	<b>Wetlands that meet ONE OR MORE of the following criteria are LSWs.</b>
X		Wetlands that score the highest rank (stated in italics below) for any of the four ecological functions addressed by OFWAM or equivalent methodology:  ___ <i>diverse</i> wildlife habitat ___ <i>intact</i> fish habitat ___ <i>intact</i> water quality <u>X</u> <i>intact</i> hydrologic control
	X	Wetlands that are rated in the second highest functional category for water quality (called <i>impacted</i> or <i>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</i> or <i>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 and there is documented use for educational purposes by a school or organization

**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**

<u>Tree Stratum</u>	<u>Shrub Stratum</u>	<u>Herbaceous Stratum</u>
	<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**

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

<u>Depth (In.)</u>	<u>Matrix Color</u>	<u>Redox Concentrations</u>	<u>Redox Depletions</u>	<u>Texture*/Structure</u>
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.

County: Washington Date: 5/8/02 File # TD-3  
 Project/Contact: \_\_\_\_\_ Det. by: KU, JG  
 Plant Community: \_\_\_\_\_ Plot # \_\_\_\_\_  
 Plot location: Drainage Ditch North of IRR 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 densa</u>	<u>OBL</u>	<u>10</u>
<u>Sapling/Shrub Stratum</u>			5. _____		
Total Cover: <u>10%</u>			6. _____		
1. <u>Salix viticordis</u>	<u>FACW</u>	<u>30</u>	7. _____		
2. <u>Salix lasiandra</u>	<u>FACWT</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 matris on banks  
 Criteria Met? YES  NO \_\_\_\_\_

SOILS

Map Unit Name: Verboort Silty Clay Loam Drainage Class: partly drained  
 Taxonomy: fine, mixed, calc 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:

- |  |   |
|--|---|
| <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: 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 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 not meet the criteria in Section B, “IN” Test for significance.**

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

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

## 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

T1N R3W SECTION 33

City of Cornelius  
Local  
Wetlands Inventory

Wetland Site: PW-1 & PW-2

### Legend

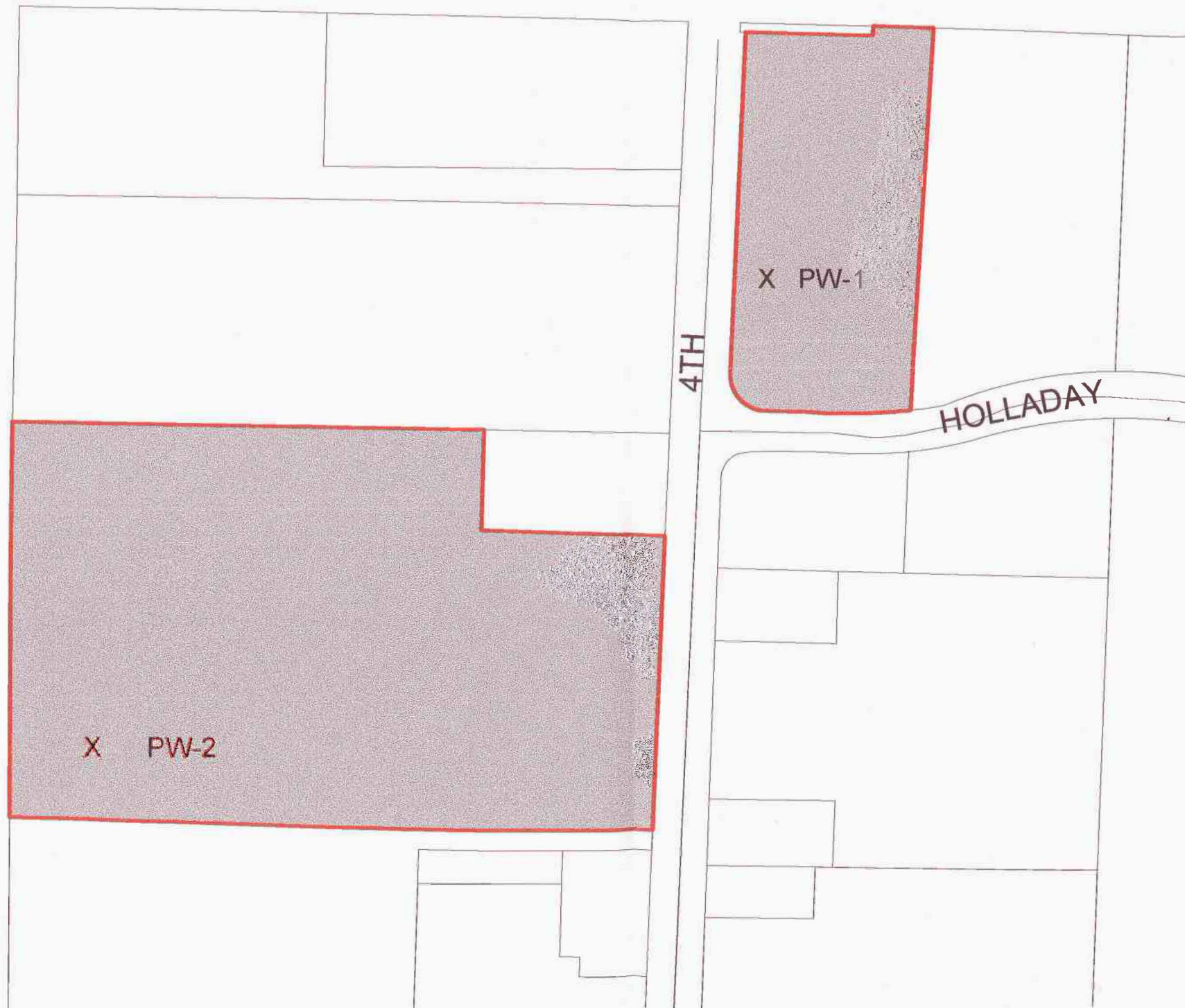
- X Sample Plot
- ≡ Railroad
- ∧ Streets
- ∧ Drainage Ditch
- ≡ Stream
- ▭ Wetland
- ▭ Field Verified
- ▭ Adjacent Parcels
- ▭ Tax Lots

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.



0 1:2,400 200 Feet

Information Current as of:  
**March 2003**



# Appendix A

## HYDRIC SOILS MAP



## Appendix B

# OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY (OFWAM) RESULTS

# Appendix B Wetland Characterization

Notes

## Tualatin River Sites

When the field work was conducted along Tualatin River on May 8, 2003 near the southern boundary of the City data was collected for the 'Wetland Characterization' form based on two sites TR-1 and TR-2.

Watershed identification Tualatin River

**Wetland Characterization (Page 1 of 19)**

*Watershed Notes*

**Watershed setting**

All questions pertaining to the watershed can be answered in the office from aerial photographs, U.S. Geological Service topographical maps, and other reference materials. (See Appendix A.)

**Drainage basin**

The Oregon Water Resources Department has divided the state into 18 drainage basins. Check the map in Appendix H to see which drainage basin contains the study site.

1. What is the name of the drainage basin that contains your assessment area?

**Physical characteristics of the watershed being assessed (within the drainage basin)**

**Topography**

2. What is the watershed's area in square miles? The watershed area is often much smaller than the drainage basin (see Appendix E).
3. Calculate the average slope of the watershed (see Appendix F).

**Hydrologic profile**

4. Is the stream flow in the watershed modified by dams, channelization or levees? (Choose all that are appropriate.)
  - a. Tributary streams to the main stem stream are modified.
  - b. Main stem stream is modified.
  - c. Stream flow is not modified (free-flowing.)
5. Is water being taken out of the stream(s) through active diking, drainage or irrigation districts in the watershed upstream of the assessment area?
  - a. Yes.
  - b. No.

**Land uses within the watershed**

6. What is the dominant land use in the watershed upstream from the assessment area?
  - a. Urban.
  - b. Urbanizing (mix of urban, agriculture and forest uses).
  - c. Agriculture (farming, ranching or grazing).
  - d. Forested or natural area.

Lower Willamette &  
Sandy Drainage  
Basin

712 square miles  
17% stream gradient

Main stem modified;  
dams, irrigation, etc.

Yes

Agriculture

Watershed identification \_\_\_\_\_

**Wetland Characterization (Page 2 of 19)**

**Water quality** (Use more specific water quality information, if available. Contact local DEQ office, or call the DEQ lab at (503) 229-5983 for sampling information.)

7. Consult the most recent State of Oregon Department of Environmental Quality 305(b) Report to determine whether any streams in the study area are listed as a *water quality limited*. (You may want to ask DEQ whether there are any proposed changes.) This information is included in Clean Water Act section 303(d) reporting.
- Streams or portions of streams within the study area are listed as *water quality limited*.
  - No streams or portions of streams within the study area are listed as *water quality limited*.

8. Consult the most recent *Oregon Statewide Assessment of Nonpoint Sources of Water Pollution* to determine the water quality condition of stream reaches in the watershed upstream from the assessment area. (If both "b" and "c" apply, choose "c.")
- All upstream reaches are listed as *no problem* (or no data available).
  - One or more upstream reaches are listed in *moderate* water quality condition.
  - One or more upstream reaches are listed in *severe* water quality condition.

**Biological characteristics of the watershed**

9. Fisheries: Select all that are appropriate and list type if known. (Contact local Oregon Department of Fish and Wildlife office for this information.)

- Cold water.
- Warm water.
- Anadromous.
- Wild population.
- Introduced or hatchery populations.
- None.
- Other (list).

Type

see attached  
letter from  
ODFW.

**Watershed Notes**

b.

The Tualatin is  
Water Quality Limit  
down stream from  
the study Area  
(Dairy Creek +  
the Tualatin  
confluence)

Watershed identification \_\_\_\_\_

### Wetland Characterization (Page 3 of 19)

Watershed Notes

10. Are known sensitive, threatened or endangered fish species present in the watershed? If so, list which species.

- a. Yes. *Species*
- \* Steelhead
- b. No. \* Cutthroat trout
- c. Unknown. \* Coho Salmon

11. Wildlife species: Select all that are appropriate and list species if known. (Contact local Oregon Department of Fish and Wildlife office for this information.) *Based on Watershed*

- a. Migratory birds.
- b. Big game.
- c. Nesting birds.

*Species*

12. Are known sensitive, threatened or endangered plant species or wildlife species other than fish present in the watershed? If so, list which species. (Contact local ODFW office or Natural Heritage Council for this information.)

- a. Yes.
- b. No.
- c. Unknown.

*Species*

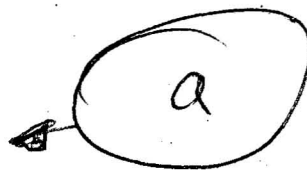
13. Does the watershed provide a natural corridor for fish or wildlife movement? (Observe from aerial photographs.) **List whether for fish, wildlife or both.** Consider fences, dams and other barriers to travel. Aerial photographs of the watershed area are the best source of information. Fragmented systems have barriers to movement or a section where the natural area is broken by developed area.

A corridor is a landscape feature that enables fish or wildlife species to travel between broad geographical areas. (See Figure 1.)

- a. There are contiguous natural areas that allow species movement, and if barriers exist, they do not stop animal or fish movement.
- b. The natural areas are fragmented, but species movement is still possible.
- c. The habitat system is fragmented, and there are barriers to species movement.

• See attached letter from ODFW

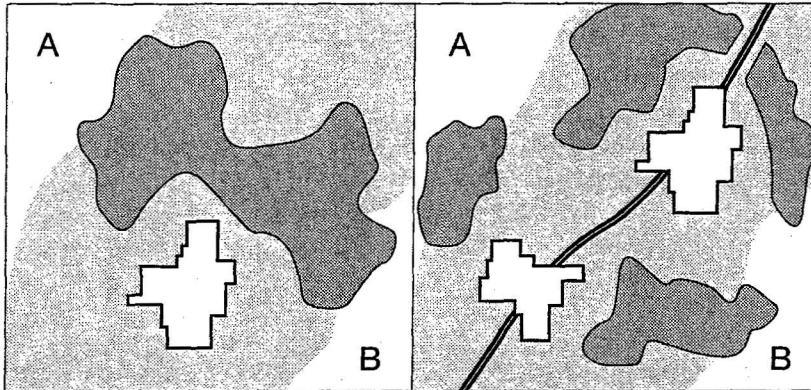
|| || ||



Watershed identification \_\_\_\_\_

**Wetland Characterization (Page 4 of 19)**

Watershed Notes



**Figure 1. Watersheds as corridors for wildlife movement.**

Areas A and B are the end points of a movement corridor through the watershed. Natural areas are shaded darkly, the irregular polygons represent highly developed areas, and the thick black line represents an impassable barrier such as an interstate highway. In the first part of the illustration, the contiguous natural area connects both ends of the corridor. The developed area is a barrier, but it does not obstruct species movement. The second half of the illustration shows fragmented natural areas with an impassable barrier. If the barrier stopped at the smaller developed area and did not continue off the lower left, species movement would still be possible.

14. What are the landscape features at both ends of the movement corridor? (These may lie outside the assessment area.) From an aerial photo, observation or local knowledge, determine whether there are large natural areas at either end of the movement corridor. The natural area does not have to be a wetland.

- a. Large natural habitat areas are at both ends.
- b. One end has a natural habitat area and the other end is developed.
- c. Both ends are developed.

(a)

Watershed identification \_\_\_\_\_

TR-1 | TR-2

**Wetland Characterization (Page 5 of 19)**

**Individual wetland sites**

Fill out this part of the characterization for each wetland in the assessment area. Some of the information can be gathered in the office; some must be gathered at the site. You may want to do a rough sketch of the site (doesn't have to be to scale) to refer to back in the office.

**Wetland structure and relation to surrounding landscape**

✓15. What percentage of the area within 500 feet of the wetland's edge is dedicated to the land uses listed below? (From overlay 2 or in the field.)

It is best to determine the land uses from a recent aerial photo. If an aerial photo is not available, measure 500 feet in the field to get an idea of distance to evaluate. Use the following ranges for your answers for each land-use category:

- a. Less than 20%.
- b. Between 20% and 50%.
- c. Greater than 50%.
- 1. Open Space (includes natural areas, parks and developed recreation areas, but not land designated for Exclusive Forest Use).
- 2. Agriculture (pasture, cropped lands, orchards, range land). — 50% — a.
- 3. Exclusive Forest Use lands.
- 4. Developed uses (residential, commercial or industrial— rural and urban). — 50% — c
- 5. Other (list).

✓16. What is the dominant existing land use within 500 feet of the wetland on the **downstream or down-slope edge** of the wetland? Use the same land-use categories as question 15.

17. What is the wetland's area in acres? (Measure the entire area of contiguous wetland, not just the portion within the assessment area. Use the dimensions of the wetland as outlined on the base map.)

- a. Greater than 5 acres.
- b. Between 0.5 acres and 5 acres.
- c. Less than 0.5 acres.

	Wetland 1	Wetland 2	Wetland 3
15. What percentage of the area within 500 feet of the wetland's edge is dedicated to the land uses listed below? (From overlay 2 or in the field.)			
16. What is the dominant existing land use within 500 feet of the wetland on the downstream or down-slope edge of the wetland? Use the same land-use categories as question 15.	Agriculture	Agriculture	
17. What is the wetland's area in acres? (Measure the entire area of contiguous wetland, not just the portion within the assessment area. Use the dimensions of the wetland as outlined on the base map.)	a.	b.	

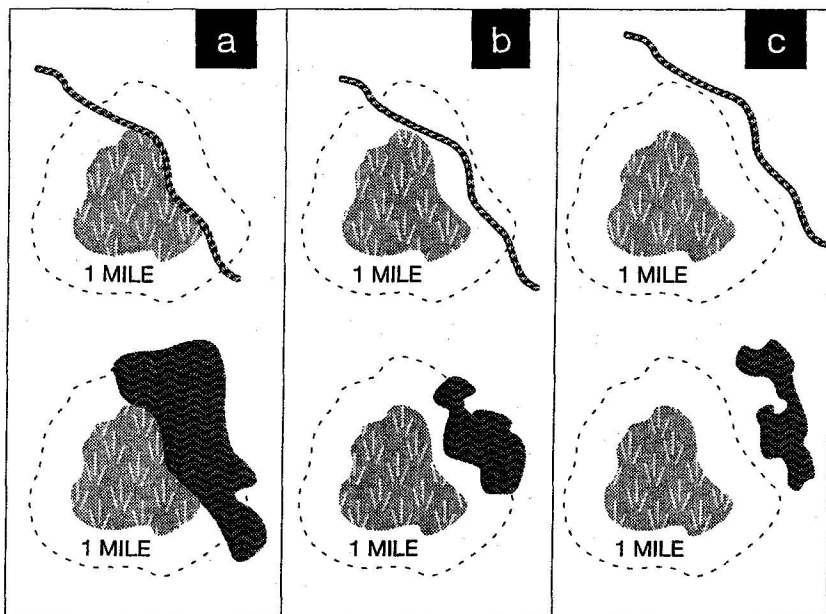
✓ Questions preceded by a check mark can be completed in the field.

Watershed identification \_\_\_\_\_

TR-1

TR-2

**Wetland Characterization (Page 6 of 19)**



**Figure 2. Connectivity to streams, lakes and ponds.**  
 The lightly shaded area represents a wetland, the darkly shaded area represents a lake or pond and the dark line represents a stream. Part "a" shows the wetland connected to a stream, lake or pond, part "b" shows a stream, lake or pond within 1 mile but no surface connection, and part "c" shows no stream, lake or pond within 1 mile and no surface connection.

18. How is the wetland connected to another body of water, such as a stream, lake or pond? (See Figure 2.)
- a. The wetland is connected by surface water to another body of water. This may be by a culvert, irrigation ditch, intermittent stream or perennial stream.
  - b. No surface-water connection exists to another body of water, but other bodies of water lie within 1 mile of the wetland.
  - c. No surface-water connection exists to another body of water, and no other bodies of water lie within 1 mile of the wetland.

19. Is all or part of the wetland located within the 100-year floodplain (use floodplain maps to determine) or within an enclosed basin? An enclosed basin has no inlet or outlet.
- a. Yes.
  - b. No.

	Wetland 1	Wetland 2	Wetland 3
18. How is the wetland connected to another body of water, such as a stream, lake or pond? (See Figure 2.)	a.	a.	
19. Is all or part of the wetland located within the 100-year floodplain (use floodplain maps to determine) or within an enclosed basin? An enclosed basin has no inlet or outlet.	a.	a.	

Watershed identification \_\_\_\_\_

TR-1
TR-2

Wetland 1
Wetland 2
Wetland 3

**Wetland Characterization (Page 7 of 19)**

20. What percentage of the area within 500 feet of the wetland's edge is **zoned** for each of the land uses listed below?

Use the following ranges for your answers:

- a. Less than 20%
- b. Between 20% and 50%
- c. Greater than 50%.

1. Open Space (includes natural areas, parks and developed recreation areas, but not lands zoned for Exclusive Forest Use).

2. Agriculture (pasture, cropped lands, orchards, range land).

3. Exclusive Forest Use lands.

4. Developed uses (residential, commercial, industrial).

5. Other (list).

	Wetland 1	Wetland 2
1. Open Space (includes natural areas, parks and developed recreation areas, but not lands zoned for Exclusive Forest Use).		
2. Agriculture (pasture, cropped lands, orchards, range land).	50%	< 20%
3. Exclusive Forest Use lands.		
4. Developed uses (residential, commercial, industrial).	50%	> 50%
5. Other (list).		

**Wetland habitat**

✓21. What percentage of the wetland's area is covered by the following Cowardin wetland classes? (Cowardin wetland classes refer to a classification of wetland type by vegetation cover. See Appendix D.) Only list those that compose 10% or more of the overall wetland.

The percentages can be estimated in the field or from aerial photographs. Use the following categories for your answers:

- a. Between 70% and 100%.
- b. 50% or more, but less than 70%.
- c. 20% or more, but less than 50%.
- d. 10% or more, but less than 20%.

1. Open water (deep water habitat, greater than or equal to 6.6 feet or 2 meters).

2. Emergent (includes floating aquatics—herbaceous plants that can tolerate flooding and living in wet soils).

3. Scrub-shrub (woody vegetation under 20 feet tall).

4. Forested (woody vegetation 20 feet or taller).

✓22. For urban areas, how many wetland plant species are present? (You need not list the species name.)

- a. More than 5 plant species.
- b. Between 2 and 5 plant species.
- c. 1 plant species (monotypic).

Watershed identification \_\_\_\_\_

TR-1

TR-2

**Wetland Characterization (Page 8 of 19)**

- ✓23. What is the dominant wetland vegetation cover type?
- a. Woody vegetation (forested and scrub-shrub).
  - b. Emergent vegetation and ponding, or open water only.
  - c. Emergent vegetation only or wet meadow.

Wetland 1

Wetland 2

Wetland 3

a.

a./b.

- ✓24. Refer to the diagrams in Figure 3 and select the one that most closely resembles the interspersions of Cowardin wetland classes and, if present, upland inclusions. (An upland inclusion is an island or an upland area surrounded on three sides by wetland.). Wetlands composed of only one wetland class or with two wetland classes and a simple pattern have low interspersions. Wetlands and upland complexes that have at least two wetland classes and a complex pattern have a moderate interspersions pattern. Wetlands with two or more wetland classes or upland inclusions with a complex pattern and lots of edge have a high interspersions pattern. If the wetland you are observing does not reflect any of the diagrams, use the above guidance to determine the complexity of the interspersions pattern and draw a sketch of the wetland.
- a. High.
  - b. Moderate.
  - c. Low.

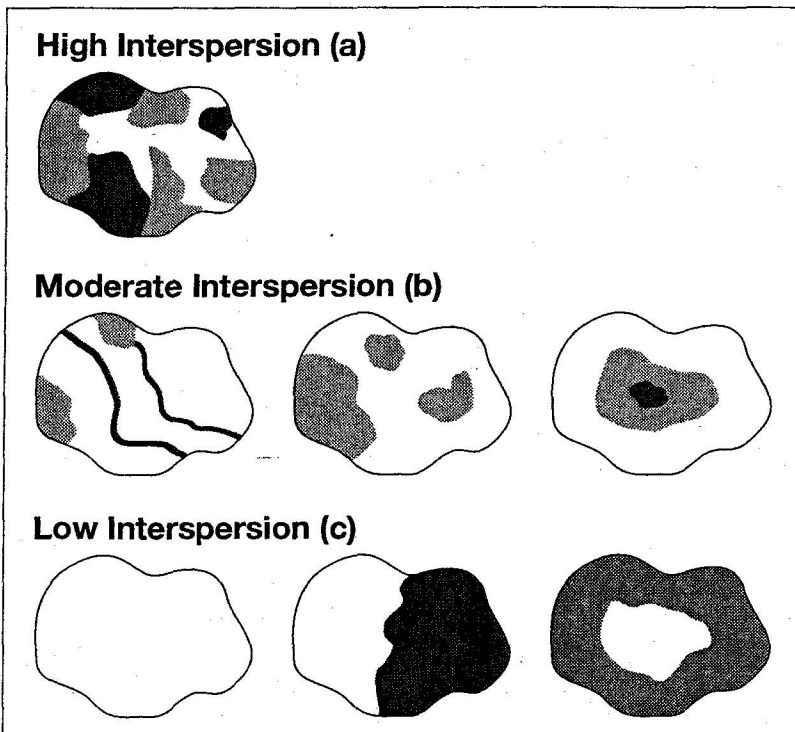


Figure 3. Interspersion of Cowardin classes and upland inclusions.

Watershed identification \_\_\_\_\_

TR-1      TR-2

Wetland 1      Wetland 2      Wetland 3

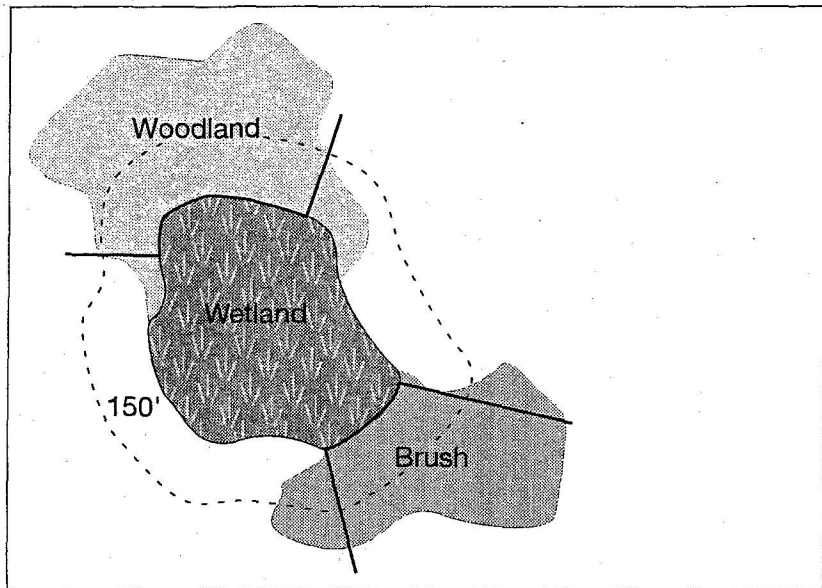
**Wetland Characterization (Page 9 of 19)**

✓25. For **rural areas**: What percentage of the wetland's edge is bordered by upland wildlife habitat that is at least 150 feet wide? Brush, woodland, non-farmed agricultural land and range land are considered upland habitat for this question. Actively farmed lands are not considered wildlife habitat. (See Figure 4.)

- a. Greater than 40%.
- b. Between 10% and 40%.
- c. Less than 10%.

✓26. For **urban areas**: What percentage of the wetland's edge is bordered by a vegetative buffer at least 25 feet wide? A vegetative buffer consists of trees, bushes or vegetation that is not regularly mowed or farmed. (See Figure 5.)

- a. Greater than 40%.
- b. Between 10% and 40%.
- c. Less than 10%.



**Figure 4. Percent of wetland edge bordered by upland habitat (for Question 25).**

The dashed line delineates the area within 150 feet of the wetland; the "woodland" and "brush" areas are upland habitat; and the lines perpendicular to the wetland edge indicate where the upland habitat adjacent to the wetland habitat is at least 150 feet wide. The dark lines (portions of the wetland bordered by upland habitat at least 150 feet wide) make up roughly one-third (between 10% and 40%) of the wetland perimeter.

Wetland 1	Wetland 2	Wetland 3
a.	a.	

Watershed identification \_\_\_\_\_

TR-1

TR-2

**Wetland Characterization (Page 10 of 19)**

27. How is the wetland connected to other wetlands? (Look at an aerial photo or map to determine this.)
- a. Connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, culvert, canal or lake.
  - b. Not connected by surface waters, but other unconnected wetlands lie within a 3-mile radius.
  - c. Not connected to other wetlands by surface waters, and no other unconnected wetlands lie within a 3-mile radius.
28. Estimate the area of unvegetated, open water within the wetland.
- a. More than 3 acres.
  - b. Greater than 1 acre, up to 3 acres.
  - c. Between 0.5 acre and 1 acre.
  - d. Less than 0.5 acre.

Wetland 1

Wetland 2

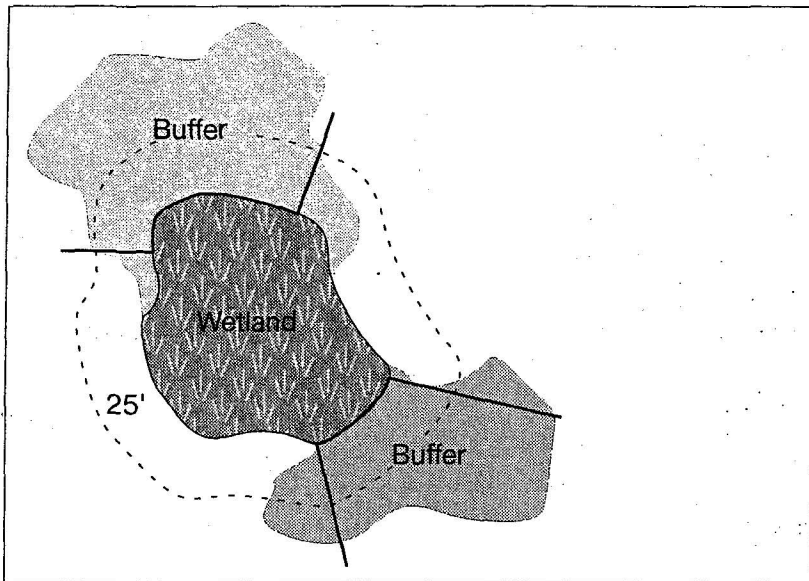
Wetland 3

a.

a.

d.

d.



**Figure 5. Percent of wetland edge bordered by vegetative buffer (for Question 26).**

The dashed line delineates the area within 25 feet of the wetland; the vegetative buffer areas are labeled "buffer"; and the lines perpendicular to the wetland edge indicate where the vegetative buffer adjacent to the wetland habitat is at least 25 feet wide. The dark lines (portions of the wetland bordered by a vegetative buffer at least 25 feet wide) make up roughly one-third (between 10% and 40%) of the wetland perimeter.

Watershed identification \_\_\_\_\_

	TR-1 Wetland 1	TR-2 Wetland 2	Wetland 3
<p><b>Wetland Characterization (Page 11 of 19)</b></p> <p><b>Fisheries habitat</b></p> <p>29. Are fish present in a stream, lake or pond <u>connected</u> to the wetland.</p> <p>a. Salmon, trout or sensitive species are present at some time during the year.</p> <p>b. Species not covered in "a" are present at some time during the year.</p> <p>c. No species are present at any time during the year.</p>	a.	c.	
<p><b>Streams connected to the wetland</b></p> <p>Complete this section only if the wetland being assessed has an unimpeded surface water connection to a stream.</p> <p>✓30. What is the physical character of the stream channel? To observe stream channel modifications, look for built rock banks, cement sides, straightened areas or other human-created features.</p> <p>a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel.</p> <p>b. Only portions of the stream are modified.</p> <p>c. The stream is extensively modified or confined in a non-vegetated channel or pipe.</p>	b.	b.	
<p>✓31. What percentage of the stream is shaded by streamside (riparian) vegetation?</p> <p>a. Greater than 75%.</p> <p>b. Between 50 and 75%.</p> <p>c. 25% or more, but less than 50%.</p> <p>d. Less than 25%.</p>	a.	c.	
<p>✓32. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders?</p> <p>a. Greater than 25%.</p> <p>b. Between 10% and 25%.</p> <p>c. Less than 10%.</p>	a.	c.	
<p><b>Lakes or ponds</b> (entire lake or pond and wetland complex)</p> <p>Complete this section only if the wetland being assessed has a surface water connection to a lake or pond.</p> <p>33. Does the lake or pond contain areas of deep and shallow water? ("Deep" is defined as more than 6.5 feet deep.)</p> <p>a. Yes.</p> <p>b. Cannot be determined.</p> <p>c. No.</p>			

Watershed identification \_\_\_\_\_

TR-1

TR-2

**Wetland Characterization (Page 12 of 19)**

Wetland 1

Wetland 2

Wetland 3

- ✓34. What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation?
- a. 60% or more.
  - b. 20% or more, but less than 60%.
  - c. Less than 20%.

a.

c.

- ✓35. What percentage of the wetland complex contains cover objects such as submerged logs, floating or submerged vegetation, large rocks or boulders?
- a. Greater than 25%
  - b. Between 10 and 25%
  - c. Less than 10%

**Wetland hydrology**

36. What is the wetland's **primary** source of water? (Determine in the field or in the office. This may be difficult to determine. If a surface water connection exists—stream, lake, ditch—use it as the primary source. If no surface water connection is present, talk to local natural resource people for hints.)
- a. Surface flow, including streams and ditches.
  - b. Precipitation or sheet flow.
  - c. Groundwater, including springs or seeps.

a.

a.

- ✓37. Is there evidence of flooding or ponding during a portion of the growing season? Look for evidence of water fluctuation such as sediment stains on trees, drift lines, surface scour or sediment deposits. Also look at the location of the wetland. Is it in a distinct topographic depression or adjacent to a stream that is known to flood or fluctuate because of storm pulses?
- a. Yes (describe).
  - b. Unable to determine or not applicable.
  - c. No.

a.

• water marks on vegetation  
• matted grass

- ✓38. Is water flow out of the wetland restricted (e.g., beaver dam, concrete structure, undersized culvert)?
- a. Yes, the outlet is restricted or the wetland has no outlet.
  - b. Minor restrictions slow down the water (e.g., undersized culvert).
  - c. No, the outlet has unrestricted flow.

b.

Some fill, with development

Watershed identification Tualatin River

	TR-1 Wetland 1	TR-2 Wetland 2	Wetland 3
<p>✓39. If the primary source of water is surface flow, is the water flow into the wetland restricted?</p> <p>a. Flow is not restricted, or if blocked, the obstruction can be removed easily.</p> <p>b. Permanent blockage to the flow exists but may be breached or a new flow channel created (engineering or earth moving solution).</p> <p>c. Flow is restricted and cannot be restored.</p>		C. (Piped)	
<p>40. Has the stream flow or stream bank been modified by human activities less than 1 mile above the wetland? Modifications include dams, channelizations and levees, and confinement of the stream in a pipe.</p> <p>a. Yes.</p> <p>b. No.</p>		a.	
<p><b>Public access to wetland site</b> (select an appropriate area to observe the wetland to answer these questions.)</p> <p>41. Is the wetland site open to the public for direct access or observation?</p> <p>a. Yes, the wetland is open to the public.</p> <p>b. Yes, but wetland access is allowed only by permission of the landowner or managing entity.</p> <p>c. No, access is not allowed.</p>		a.	
<p>✓42. Are there visible hazards to the public at the wetland site? (Examples: busy road adjacent to the site, and no buffer or sidewalk exists; <u>steep embankment</u>; and contaminated water.)</p> <p>a. No.</p> <p>b. One or two visible safety hazards exist (describe).</p> <p>c. More than two visible safety hazards exist (describe).</p>	a.	b.	
<p>✓43. Are there other natural landscape features, such as a stream, lake, pond, forest or <u>agricultural land</u> contiguous or adjacent to the wetland?</p> <p>a. Yes. (List type and extent.)</p> <p>b. No.</p>	a.	a.	

Watershed identification \_\_\_\_\_

TR-1      TR-2  
 Wetland 1      Wetland 2      Wetland 3

**Wetland Characterization (Page 14 of 19)**

✓44. Is there existing physical public access to features listed in Question 43? If not, can such access be created easily, or can other habitats be observed from the site? For a stream, pond or lake, access may require dry ground to the water's edge. Stream access could also be at a road crossing, but consider the safety at such locations

- a. Public access to other habitats exists or can be created easily.
- b. Public access doesn't exist and can't be created easily, but observation of other features can be made from the site.
- c. Public access doesn't exist and can't be created easily. In addition, observation of other features can't be made from the site.

✓45. Does it appear that access to a viewing spot or wetland edge is available for individuals with limited mobility? (To see whether the site meets ADA requirements, a more thorough examination should be done.)

- a. Yes.
- b. No. (List physical barriers.)

✓46. Is there a public access point within 250 feet of the wetland's edge? Access points include parking lots, transit stops, bike lanes, trails and water courses. Maintained means that the area is designated as a car or transit area by the managing entity. Unmaintained would be a road pull-off or other area that people use but is not designated for such use. Describe the type of access.

- a. Yes, a maintained access point exists (describe).
- b. Yes, an unmaintained access point exists (describe).
- c. No access point exists, or the access point is hazardous.

**Recreation**

✓47. Is the wetland accessible by boat?

- a. Boat launching areas or access points exist on site or within 1/2 mile on a connected lake, river, bay or other body of water.
- b. Potential to develop boat launching areas or access points exists, or such features are more than 1/2 mile but less than 1 mile from the wetland.
- c. No boat launching areas or access points exist within 1 mile of the wetland, and potential to develop launching areas or access points is limited.

	Wetland 1	Wetland 2	Wetland 3
✓44. Is there existing physical public access to features listed in Question 43? If not, can such access be created easily, or can other habitats be observed from the site? For a stream, pond or lake, access may require dry ground to the water's edge. Stream access could also be at a road crossing, but consider the safety at such locations			
✓45. Does it appear that access to a viewing spot or wetland edge is available for individuals with limited mobility? (To see whether the site meets ADA requirements, a more thorough examination should be done.)	b. • Private property • Geography	a. • Sidewalk on Heather Street	
✓46. Is there a public access point within 250 feet of the wetland's edge? Access points include parking lots, transit stops, bike lanes, trails and water courses. Maintained means that the area is designated as a car or transit area by the managing entity. Unmaintained would be a road pull-off or other area that people use but is not designated for such use. Describe the type of access.	c.	b. • Public easement S. 15 <sup>th</sup> + Fawn Ct.	
<b>Recreation</b>			
✓47. Is the wetland accessible by boat?			
a. Boat launching areas or access points exist on site or within 1/2 mile on a connected lake, river, bay or other body of water.			
b. Potential to develop boat launching areas or access points exists, or such features are more than 1/2 mile but less than 1 mile from the wetland.			
c. No boat launching areas or access points exist within 1 mile of the wetland, and potential to develop launching areas or access points is limited.			

Watershed identification Tualatin River

TR-1  
Wetland 1

TR-2  
Wetland 2

Wetland 3

**Wetland Characterization (Page 17 of 19)**

✓48. Are there trails, viewing areas or other structures that guide user movement to a particular area or areas in or around the wetland?  
 a. Yes, developed or maintained trails or viewing areas exist.  
 b. Yes, undeveloped trails or viewing areas exist that do not disrupt wildlife or plant habitat.  
 c. No trails or viewing areas exist, or those that do disrupt wildlife or plant habitat.

C.	b. some limited trail access	
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49. Is fishing allowed at the wetland or connected water body? (Contact local Oregon Department of Fish and Wildlife office.) Answer "not applicable" if question 18 was answered "b" or "c," unless question 21 indicates that 10% or more of the wetland's area is covered by open water.  
 a. Yes (either all or part of the year).  
 b. No.  
 c. Not applicable.

a.	C.	
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50. Is hunting allowed at the wetland? (If the wetland is within the city limits, hunting is not allowed. Otherwise, contact the local Oregon Department of Fish and Wildlife office for this information.)  
 a. Yes (either all or part of the year).  
 b. No.

a.	b.	
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**Aesthetics**

✓51. For **rural areas**, what is the extent of visual contrast with the surrounding landscape? (See Figure 6.)  
 a. Significant contrast with surrounding landscape.  
 b. Limited contrast with surrounding landscape.  
 c. Little or no contrast with surrounding landscape.

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✓52. For **urban areas**, what is the visual character of the surrounding area? (See Figure 7.)  
 a. Open space or naturally landscaped areas.  
 b. Areas landscaped or manipulated by people.  
 c. Developed with no landscaping.

b.	b.	
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✓53. Are there visual detractors at the wetland site such as abandoned cars, litter, shopping carts or other objects that distract the viewer from the wetland?  
 a. Yes.  
 b. No.

	a.	
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Watershed identification \_\_\_\_\_

	TR-1 Wetland 1	TR-2 Wetland 2	Wetland 3
<p>✓54. If the wetland contains visual detractors, as indicated in question 53, can they be removed easily?</p> <p>a. Yes.</p> <p>b. No.</p>		a.	
<p><b>Locate the primary viewing area(s) for the following four questions (be sure to indicate the location on the overlay).</b></p> <p>✓55. What odors are present at the primary viewing location(s)?</p> <p>a. Natural, pleasant odors only.</p> <p>b. Unpleasant odors such as automobile exhaust or stench from a sewage treatment plant are present at certain times.</p> <p>c. Unpleasant odors are distinct and continuously present.</p>		a.	



**Figure 6. Visual contrast.**

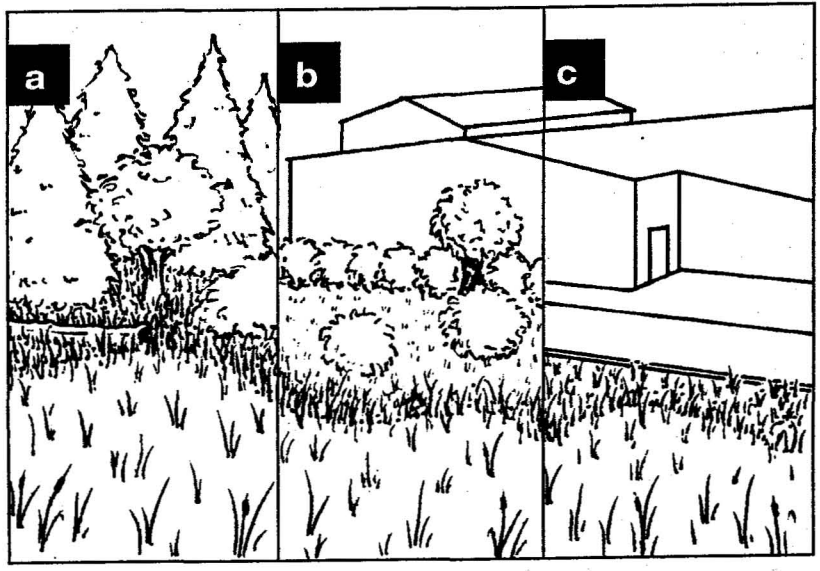
The top part of the figure shows a wetland with significant visual contrast with the surrounding landscape. The bottom part shows a wetland with little or no visual contrast with the surrounding landscape.

Watershed identification Tualatin

FR-1 | TR-2

**Wetland Characterization (Page 19 of 19)**

	Wetland 1	Wetland 2	Wetland 3
<p>✓56. What noises are audible at the primary viewing location(s)?</p> <p>a. Bird and wildlife noises and other naturally occurring sounds.</p> <p>b. Some traffic and other similar background sounds are audible in addition to naturally occurring sounds.</p> <p>c. Continuous traffic or other intrusive noise is audible in addition to naturally occurring sounds.</p> <p>d. Continuous traffic or other intrusive noise is audible, but no naturally occurring sounds are.</p>		b.	
<p>✓57. How much of the wetland is visible from the viewing area(s)? Describe the view.</p> <p>a. Greater than 50%.</p> <p>b. Between 25% and 50%.</p> <p>c. Less than 25%.</p>		b.	
<p>✓58. How many Cowardin classes are visible from the primary viewing area(s)? (See question 21 for list of Cowardin classes to use.)</p> <p>a. More than two.</p> <p>b. Two</p> <p>c. One</p>			



**Figure 7. Visual character of urban wetlands.**  
 Beginning with the left part, this figure shows an urban wetland with naturally landscaped areas, areas landscaped by people and with unlandscaped developed areas.

**Appendix B**  
**Wetland**  
**Characterization**

Notes

Council Creek  
Drainage Unit

CCDU-1

Watershed identification \_\_\_\_\_

## Wetland Characterization (Page 1 of 19)

### Watershed setting

All questions pertaining to the watershed can be answered in the office from aerial photographs, U.S. Geological Service topographical maps, and other reference materials. (See Appendix A.)

### Drainage basin

The Oregon Water Resources Department has divided the state into 18 drainage basins. Check the map in Appendix H to see which drainage basin contains the study site.

1. What is the name of the drainage basin that contains your assessment area?

### Physical characteristics of the watershed being assessed (within the drainage basin)

#### Topography

2. What is the watershed's area in square miles? The watershed area is often much smaller than the drainage basin (see Appendix E).
3. Calculate the average slope of the watershed (see Appendix F).

#### Hydrologic profile

4. Is the stream flow in the watershed modified by dams, channelization or levees? (Choose all that are appropriate.)
  - a. Tributary streams to the main stem stream are modified.
  - b. Main stem stream is modified.
  - c. Stream flow is not modified (free-flowing).
5. Is water being taken out of the stream(s) through active diking, drainage or irrigation districts in the watershed upstream of the assessment area?
  - a. Yes.
  - b. No.

#### Land uses within the watershed

6. What is the dominant land use in the watershed upstream from the assessment area?
  - a. Urban.
  - b. Urbanizing (mix of urban, agriculture and forest uses).
  - c. Agriculture (farming, ranching or grazing).
  - d. Forested or natural area.

### Watershed Notes

Lower Willamette  
Sandy Drainage Basin

Watershed identification

CCDU-1

**Wetland Characterization (Page 2 of 19)****Watershed Notes**

**Water quality** (Use more specific water quality information, if available. Contact local DEQ office, or call the DEQ lab at (503) 229-5983 for sampling information.)

7. Consult the most recent State of Oregon Department of Environmental Quality 305(b) Report to determine whether any streams in the study area are listed as a *water quality limited*. (You may want to ask DEQ whether there are any proposed changes.) This information is included in Clean Water Act section 303(d) reporting.
  - a. Streams or portions of streams within the study area are listed as *water quality limited*.
  - b. No streams or portions of streams within the study area are listed as *water quality limited*.
8. Consult the most recent *Oregon Statewide Assessment of Nonpoint Sources of Water Pollution* to determine the water quality condition of stream reaches in the watershed upstream from the assessment area. (If both "b" and "c" apply, choose "c.")
  - a. All upstream reaches are listed as *no problem* (or no data available).
  - b. One or more upstream reaches are listed in *moderate* water quality condition.
  - c. One or more upstream reaches are listed in *severe* water quality condition.

**Biological characteristics of the watershed**

9. Fisheries: Select all that are appropriate and list type if known. (Contact local Oregon Department of Fish and Wildlife office for this information.)

**Type**

- a. Cold water.
- b. Warm water.
- c. Anadromous.
- d. Wild population.
- e. Introduced or hatchery populations.
- f. None.
- g. Other (list).

Watershed identification CCDU-1

**Wetland Characterization (Page 3 of 19)**

*Watershed Notes*

10. Are known sensitive, threatened or endangered fish species present in the watershed? If so, list which species.

*Species*

- a. Yes.
- b. No.
- c. Unknown.

11. Wildlife species: Select all that are appropriate and list species if known. (Contact local Oregon Department of Fish and Wildlife office for this information.)

*Species*

- a. Migratory birds.
- b. Big game.
- c. Nesting birds.

12. Are known sensitive, threatened or endangered plant species or wildlife species other than fish present in the watershed? If so, list which species. (Contact local ODFW office or Natural Heritage Council for this information.)

*Species*

- a. Yes.
- b. No.
- c. Unknown.

13. Does the watershed provide a natural corridor for fish or wildlife movement? (Observe from aerial photographs.) **List whether for fish, wildlife or both.** Consider fences, dams and other barriers to travel. Aerial photographs of the watershed area are the best source of information. Fragmented systems have barriers to movement or a section where the natural area is broken by developed area.

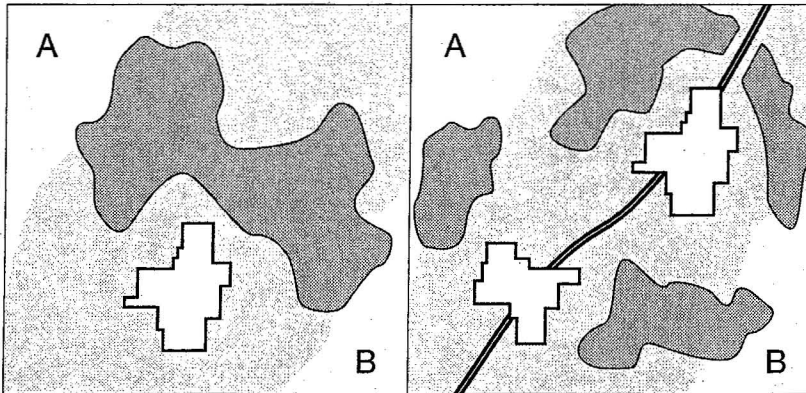
A corridor is a landscape feature that enables fish or wildlife species to travel between broad geographical areas. (See Figure 1.)

- a. There are contiguous natural areas that allow species movement, and if barriers exist, they do not stop animal or fish movement.
- b. The natural areas are fragmented, but species movement is still possible.
- c. The habitat system is fragmented, and there are barriers to species movement.

Watershed identification \_\_\_\_\_

**Wetland Characterization (Page 4 of 19)**

Watershed Notes



**Figure 1. Watersheds as corridors for wildlife movement.**

Areas A and B are the end points of a movement corridor through the watershed. Natural areas are shaded darkly, the irregular polygons represent highly developed areas, and the thick black line represents an impassable barrier such as an interstate highway. In the first part of the illustration, the contiguous natural area connects both ends of the corridor. The developed area is a barrier, but it does not obstruct species movement. The second half of the illustration shows fragmented natural areas with an impassable barrier. If the barrier stopped at the smaller developed area and did not continue off the lower left, species movement would still be possible.

14. What are the landscape features at both ends of the movement corridor? (These may lie outside the assessment area.) From an aerial photo, observation or local knowledge, determine whether there are large natural areas at either end of the movement corridor. The natural area does not have to be a wetland.
- Large natural habitat areas are at both ends.
  - One end has a natural habitat area and the other end is developed.
  - Both ends are developed.

Watershed identification CCDU-1

**Wetland Characterization (Page 5 of 19)**

**Individual wetland sites**

Fill out this part of the characterization for each wetland in the assessment area. Some of the information can be gathered in the office; some must be gathered at the site. You may want to do a rough sketch of the site (doesn't have to be to scale) to refer to back in the office.

**Wetland structure and relation to surrounding landscape**

✓15. What percentage of the area within 500 feet of the wetland's edge is dedicated to the land uses listed below? (From overlay 2 or in the field.)

It is best to determine the land uses from a recent aerial photo. If an aerial photo is not available, measure 500 feet in the field to get an idea of distance to evaluate. Use the following ranges for your answers for each land-use category:

- a. Less than 20%.
- b. Between 20% and 50%.
- c. Greater than 50%.

- 1. Open Space (includes natural areas, parks and developed recreation areas, but not land designated for Exclusive Forest Use).
- 2. Agriculture (pasture, cropped lands, orchards, range land).
- 3. Exclusive Forest Use lands.
- 4. Developed uses (residential, commercial or industrial—rural and urban).
- 5. Other (list).

✓16. What is the dominant existing land use within 500 feet of the wetland on the **downstream or down-slope edge** of the wetland? Use the same land-use categories as question 15.

17. What is the wetland's area in acres? (Measure the entire area of contiguous wetland, not just the portion within the assessment area. Use the dimensions of the wetland as outlined on the base map.)

- a. Greater than 5 acres.
- b. Between 0.5 acres and 5 acres.
- c. Less than 0.5 acres.

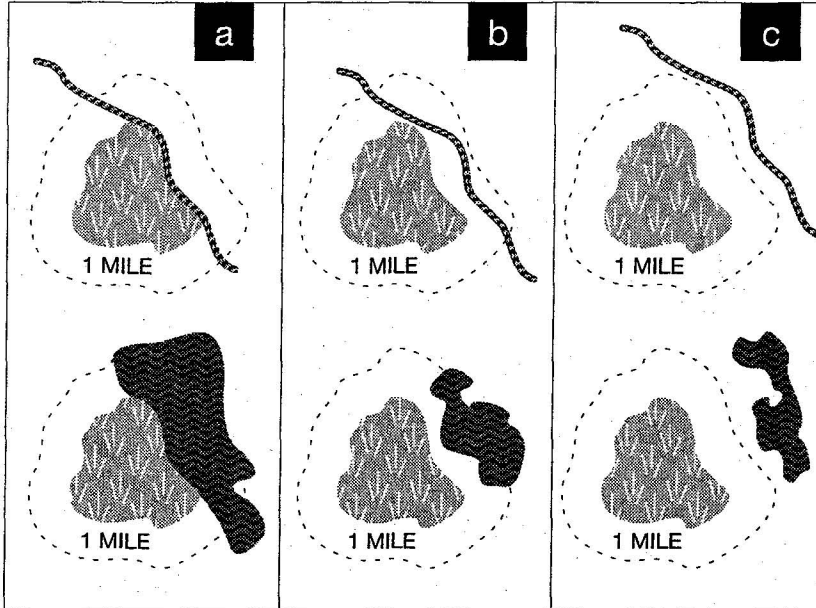
Wetland 1      Wetland 2      Wetland 3

Wetland 1	Wetland 2	Wetland 3
<p>b.</p> <p>a.</p> <p>b.</p> <p>Open Space</p> <p>b.</p>		

✓ Questions preceded by a check mark can be completed in the field.

Watershed identification CCDU-1

**Wetland Characterization (Page 6 of 19)**



**Figure 2. Connectivity to streams, lakes and ponds.**  
 The lightly shaded area represents a wetland, the darkly shaded area represents a lake or pond and the dark line represents a stream. Part "a" shows the wetland connected to a stream, lake or pond, part "b" shows a stream, lake or pond within 1 mile but no surface connection, and part "c" shows no stream, lake or pond within 1 mile and no surface connection.

18. How is the wetland connected to another body of water, such as a stream, lake or pond? (See Figure 2.)

- a. The wetland is connected by surface water to another body of water. This may be by a culvert, irrigation ditch, intermittent stream or perennial stream.
- b. No surface-water connection exists to another body of water, but other bodies of water lie within 1 mile of the wetland.
- c. No surface-water connection exists to another body of water, and no other bodies of water lie within 1 mile of the wetland.

19. Is all or part of the wetland located within the 100-year floodplain (use floodplain maps to determine) or within an enclosed basin? An enclosed basin has no inlet or outlet.

- a. Yes.
- b. No.

Wetland 1	Wetland 2	Wetland 3



Watershed identification CCDU-1

**Wetland Characterization (Page 8 of 19)**

- ✓23. What is the dominant wetland vegetation cover type?
- a. Woody vegetation (forested and scrub-shrub).
  - b. Emergent vegetation and ponding, or open water only.
  - ✓c. Emergent vegetation only or wet meadow.

- ✓24. Refer to the diagrams in Figure 3 and select the one that most closely resembles the interspersions of Cowardin wetland classes and, if present, upland inclusions. (An upland inclusion is an island or an upland area surrounded on three sides by wetland.)
- Wetlands composed of only one wetland class or with two wetland classes and a simple pattern have low interspersions. Wetlands and upland complexes that have at least two wetland classes and a complex pattern have a moderate interspersions pattern. Wetlands with two or more wetland classes or upland inclusions with a complex pattern and lots of edge have a high interspersions pattern.
- If the wetland you are observing does not reflect any of the diagrams, use the above guidance to determine the complexity of the interspersions pattern and draw a sketch of the wetland.
- a. High.
  - b. Moderate.
  - ✓c. Low.

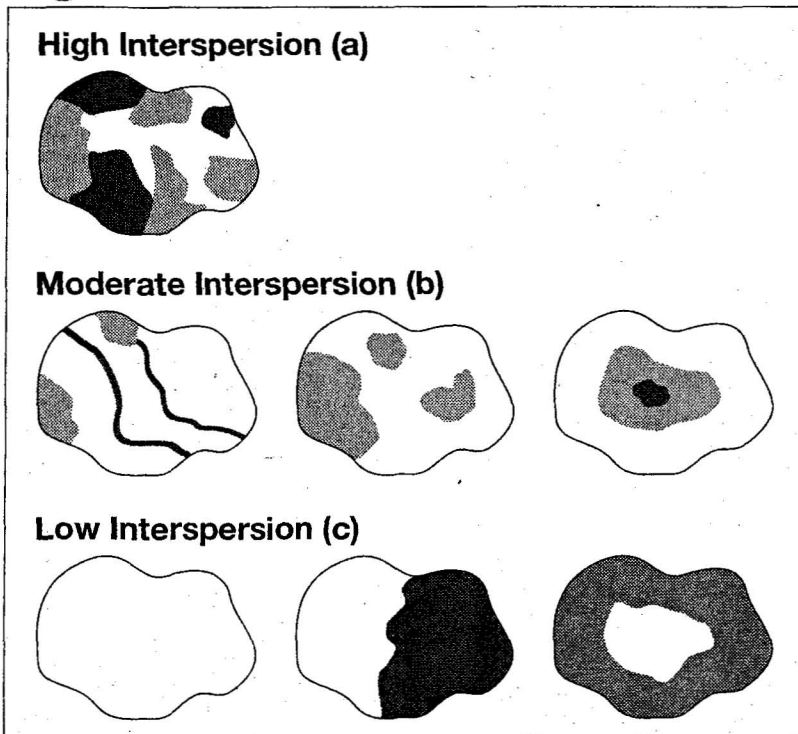


Figure 3. Interspersion of Cowardin classes and upland inclusions.

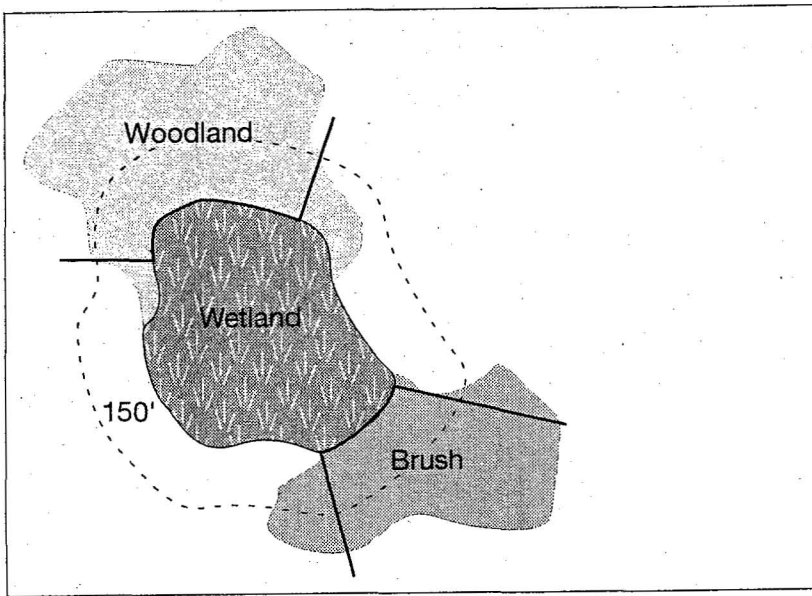
Wetland 1	Wetland 2	Wetland 3
C.		
C.		

Watershed identification CCDU-1

**Wetland Characterization (Page 9 of 19)**

- ✓25. For **rural areas**: What percentage of the wetland's edge is bordered by upland wildlife habitat that is at least 150 feet wide? Brush, woodland, non-farmed agricultural land and range land are considered upland habitat for this question. Actively farmed lands are not considered wildlife habitat. (See Figure 4.)
  - a. Greater than 40%.
  - b. Between 10% and 40%.
  - c. Less than 10%.
  
- ✓26. For **urban areas**: What percentage of the wetland's edge is bordered by a vegetative buffer at least 25 feet wide? A vegetative buffer consists of trees, bushes or vegetation that is not regularly mowed or farmed. (See Figure 5.)
  - a. Greater than 40%.
  - b. Between 10% and 40%.
  - ⓐ c. Less than 10%.

Wetland 1	Wetland 2	Wetland 3



**Figure 4. Percent of wetland edge bordered by upland habitat (for Question 25).**  
 The dashed line delineates the area within 150 feet of the wetland; the "woodland" and "brush" areas are upland habitat; and the lines perpendicular to the wetland edge indicate where the upland habitat adjacent to the wetland habitat is at least 150 feet wide. The dark lines (portions of the wetland bordered by upland habitat at least 150 feet wide) make up roughly one-third (between 10% and 40%) of the wetland perimeter.

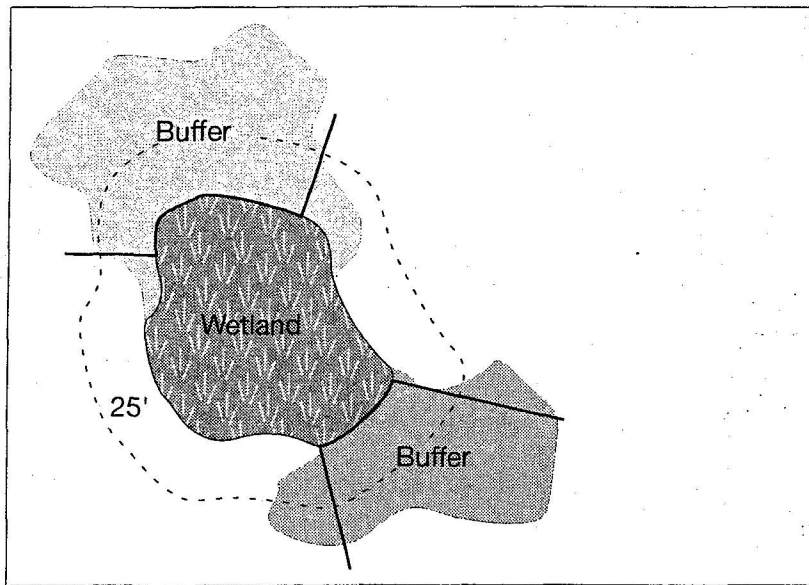
Watershed identification CCD661

**Wetland Characterization (Page 10 of 19)**

27. How is the wetland connected to other wetlands? (Look at an aerial photo or map to determine this.)
- a. Connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, culvert, canal or lake.
  - b. Not connected by surface waters, but other unconnected wetlands lie within a 3-mile radius.
  - c. Not connected to other wetlands by surface waters, and no other unconnected wetlands lie within a 3-mile radius.
28. Estimate the area of unvegetated, open water within the wetland.
- a. More than 3 acres.
  - b. Greater than 1 acre, up to 3 acres.
  - c. Between 0.5 acre and 1 acre.
  - d. Less than 0.5 acre.

Wetland 1      Wetland 2      Wetland 3

Wetland 1	Wetland 2	Wetland 3



**Figure 5. Percent of wetland edge bordered by vegetative buffer (for Question 26).**

The dashed line delineates the area within 25 feet of the wetland; the vegetative buffer areas are labeled "buffer"; and the lines perpendicular to the wetland edge indicate where the vegetative buffer adjacent to the wetland habitat is at least 25 feet wide. The dark lines (portions of the wetland bordered by a vegetative buffer at least 25 feet wide) make up roughly one-third (between 10% and 40%) of the wetland perimeter.

Watershed identification CCDU-1

**Wetland Characterization (Page 11 of 19)**

**Fisheries habitat**

29. Are fish present in a stream, lake or pond connected to the wetland.
- a. Salmon, trout or sensitive species are present at some time during the year.
  - b. Species not covered in "a" are present at some time during the year.
  - c. No species are present at any time during the year.

**Streams connected to the wetland**

Complete this section only if the wetland being assessed has an unimpeded surface water connection to a stream.

- ✓30. What is the physical character of the stream channel? To observe stream channel modifications, look for built rock banks, cement sides, straightened areas or other human-created features.
- a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel.
  - b. Only portions of the stream are modified.
  - c. The stream is ~~extensively modified~~ or confined in a non-vegetated channel or pipe.
- ✓31. What percentage of the stream is shaded by streamside (riparian) vegetation?
- a. Greater than 75%.
  - b. Between 50 and 75%.
  - c. 25% or more, but less than 50%.
  - d. Less than 25%.
- ✓32. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders?
- a. Greater than 25%.
  - b. Between 10% and 25%.
  - c. Less than 10%.

**Lakes or ponds** (entire lake or pond and wetland complex)

Complete this section only if the wetland being assessed has a surface water connection to a lake or pond.

33. Does the lake or pond contain areas of deep and shallow water? ("Deep" is defined as more than 6.5 feet deep.)
- a. Yes.
  - b. Cannot be determined.
  - c. No.

Wetland 1	Wetland 2	Wetland 3

Watershed identification

CCTDU-1

**Wetland Characterization (Page 12 of 19)**

- ✓34. What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation?
- 60% or more.
  - 20% or more, but less than 60%.
  - Less than 20%.
- ✓35. What percentage of the wetland complex contains cover objects such as submerged logs, floating or submerged vegetation, large rocks or boulders?
- Greater than 25%
  - Between 10 and 25%
  - Less than 10%

**Wetland hydrology**

36. What is the wetland's **primary** source of water? (Determine in the field or in the office. This may be difficult to determine. If a surface water connection exists—stream, lake, ditch—use it as the primary source. If no surface water connection is present, talk to local natural resource people for hints.)
- Surface flow, including streams and ditches.
  - Precipitation or sheet flow.
  - Groundwater, including springs or seeps.
- ✓37. Is there evidence of flooding or ponding during a portion of the growing season? Look for evidence of water fluctuation such as sediment stains on trees, drift lines, surface scour or sediment deposits. Also look at the location of the wetland. Is it in a distinct topographic depression or adjacent to a stream that is known to flood or fluctuate because of storm pulses?
- Yes (describe).
  - Unable to determine or not applicable.
  - No.
- ✓38. Is water flow out of the wetland restricted (e.g., beaver dam, concrete structure, undersized culvert)?
- Yes, the outlet is restricted or the wetland has no outlet.
  - Minor restrictions slow down the water (e.g., undersized culvert).
  - No, the outlet has unrestricted flow.

Wetland 1

Wetland 2

Wetland 3

Wetland 1	Wetland 2	Wetland 3

Watershed identification CCDU-1

Wetland 1      Wetland 2      Wetland 3

**Wetland Characterization (Page 13 of 19)**

- ✓39. If the primary source of water is surface flow, is the water flow into the wetland restricted?
  - a. Flow is not restricted, or if blocked, the obstruction can be removed easily.
  - b. Permanent blockage to the flow exists but may be breached or a new flow channel created (engineering or earth moving solution).
  - c. Flow is restricted and cannot be restored.
  
- 40. Has the stream flow or stream bank been modified by human activities less than 1 mile above the wetland? Modifications include dams, channelizations and levees, and confinement of the stream in a pipe.
  - a. Yes.
  - b. No.

**Public access to wetland site** (select an appropriate area to observe the wetland to answer these questions.)

- 41. Is the wetland site open to the public for direct access or observation?
  - a. Yes, the wetland is open to the public.
  - b. Yes, but wetland access is allowed only by permission of the landowner or managing entity.
  - c. No, access is not allowed.
  
- ✓42. Are there visible hazards to the public at the wetland site? (Examples: busy road adjacent to the site, and no buffer or sidewalk exists; steep embankment; and contaminated water.)
  - a. No.
  - b. One or two visible safety hazards exist (describe).
  - c. More than two visible safety hazards exist (describe).
  
- ✓43. Are there other natural landscape features, such as a stream, lake, pond, forest or agricultural land contiguous or adjacent to the wetland?
  - a. Yes. (List type and extent.)      Forest and Stream/riparian
  - b. No.

Wetland 1	Wetland 2	Wetland 3
b		

Watershed identification CCDLU-1

**Wetland Characterization (Page 14 of 19)**

Wetland 1      Wetland 2      Wetland 3

✓44. Is there existing physical public access to features listed in Question 43? If not, can such access be created easily, or can other habitats be observed from the site? For a stream, pond or lake, access may require dry ground to the water's edge. Stream access could also be at a road crossing, but consider the safety at such locations

- a. Public access to other habitats exists or can be created easily.
- b. Public access doesn't exist and can't be created easily, but observation of other features can be made from the site.
- c. Public access doesn't exist and can't be created easily. In addition, observation of other features can't be made from the site.

✓45. Does it appear that access to a viewing spot or wetland edge is available for individuals with limited mobility? (To see whether the site meets ADA requirements, a more thorough examination should be done.)

- a. Yes.
- b. No. (List physical barriers.)

✓46. Is there a public access point within 250 feet of the wetland's edge? Access points include parking lots, transit stops, bike lanes, trails and water courses. Maintained means that the area is designated as a car or transit area by the managing entity. Unmaintained would be a road pull-off or other area that people use but is not designated for such use. Describe the type of access.

- a. Yes, a maintained access point exists (describe).
- b. Yes, an unmaintained access point exists (describe).
- c. No access point exists, or the access point is hazardous.

**Recreation**

✓47. Is the wetland accessible by boat?

- a. Boat launching areas or access points exist on site or within 1/2 mile on a connected lake, river, bay or other body of water.
- b. Potential to develop boat launching areas or access points exists, or such features are more than 1/2 mile but less than 1 mile from the wetland.
- c. No boat launching areas or access points exist within 1 mile of the wetland, and potential to develop launching areas or access points is limited.

Wetland 1	Wetland 2	Wetland 3

Watershed identification CCDU-1

**Wetland Characterization (Page 17 of 19)**

- ✓48. Are there trails, viewing areas or other structures that guide user movement to a particular area or areas in or around the wetland?
  - a. Yes, developed or maintained trails or viewing areas exist.
  - b. Yes, undeveloped trails or viewing areas exist that do not disrupt wildlife or plant habitat.
  - c. No trails or viewing areas exist, or those that do disrupt wildlife or plant habitat.
- 49. Is fishing allowed at the wetland or connected water body? (Contact local Oregon Department of Fish and Wildlife office.) Answer "not applicable" if question 18 was answered "b" or "c," unless question 21 indicates that 10% or more of the wetland's area is covered by open water.
  - a. Yes (either all or part of the year).
  - b. No.
  - c. Not applicable.
- 50. Is hunting allowed at the wetland? (If the wetland is within the city limits, hunting is not allowed. Otherwise, contact the local Oregon Department of Fish and Wildlife office for this information.)
  - a. Yes (either all or part of the year).
  - b. No.

**Aesthetics**

- ✓51. For **rural areas**, what is the extent of visual contrast with the surrounding landscape? (See Figure 6.)
  - a. Significant contrast with surrounding landscape.
  - b. Limited contrast with surrounding landscape.
  - c. Little or no contrast with surrounding landscape.
- ✓52. For **urban areas**, what is the visual character of the surrounding area? (See Figure 7.)
  - a. Open space or naturally landscaped areas.
  - b. Areas landscaped or manipulated by people.
  - c. Developed with no landscaping.
- ✓53. Are there visual detractors at the wetland site such as abandoned cars, litter, shopping carts or other objects that distract the viewer from the wetland?
  - a. Yes.
  - b. No.

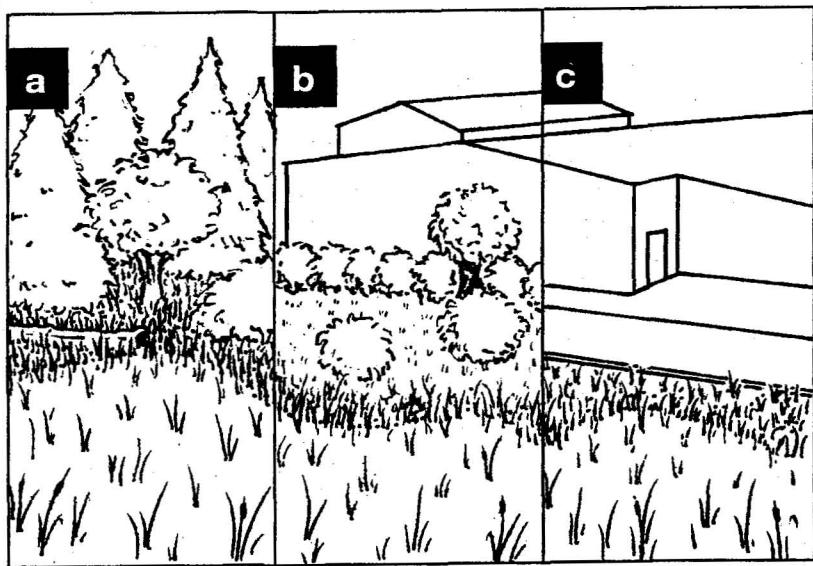
Wetland 1	Wetland 2	Wetland 3

Watershed identification CCDU-1

**Wetland Characterization (Page 19 of 19)**

Wetland 1	Wetland 2	Wetland 3

- ✓56. What noises are audible at the primary viewing location(s)?
- a. Bird and wildlife noises and other naturally occurring sounds.
  - b. Some traffic and other similar background sounds are audible in addition to naturally occurring sounds.
  - c. Continuous traffic or other intrusive noise is audible in addition to naturally occurring sounds.
  - d. Continuous traffic or other intrusive noise is audible, but no naturally occurring sounds are.
- ✓57. How much of the wetland is visible from the viewing area(s)? Describe the view.
- a. Greater than 50%.
  - b. Between 25% and 50%.
  - c. Less than 25%.
- ✓58. How many Cowardin classes are visible from the primary viewing area(s)? (See question 21 for list of Cowardin classes to use.)
- a. More than two.
  - b. Two
  - c. One



**Figure 7. Visual character of urban wetlands.**  
 Beginning with the left part, this figure shows an urban wetland with naturally landscaped areas, areas landscaped by people and with unlandscaped developed areas.

Watershed identification CCDU-1

**Wetland Characterization (Page 18 of 19)**

- ✓54. If the wetland contains visual detractors, as indicated in question 53, can they be removed easily?
- a. Yes.
  - b. No.

**Locate the primary viewing area(s) for the following four questions (be sure to indicate the location on the overlay).**

- ✓55. What odors are present at the primary viewing location(s)?
- a. Natural, pleasant odors only.
  - b. Unpleasant odors such as automobile exhaust or stench from a sewage treatment plant are present at certain times.
  - c. Unpleasant odors are distinct and continuously present.



**Figure 6. Visual contrast.**  
 The top part of the figure shows a wetland with significant visual contrast with the surrounding landscape. The bottom part shows a wetland with little or no visual contrast with the surrounding landscape.

Wetland 1	Wetland 2	Wetland 3

## Appendix B

# Wetland Characterization

Notes

When the field work was conducted along Council Creek on May 8, 2003 data was collected for the 'Wetland Characterization' form based on three sites CC-1, CC-2 and CC-3. Upon further investigation by DSL staff it was determined that the wetlands along Council Creek were contiguous and were actually one resource site. The resource site was identified as CC-1 through the rest of the research, functional analysis and significance study.

### Field Work May 8, 2003

CC-1  
CC-2  
CC-3

### Post Field Work

CC-1  
CC-1  
CC-1

Watershed identification Council Creek

### Wetland Characterization (Page 1 of 19)

#### Watershed setting

All questions pertaining to the watershed can be answered in the office from aerial photographs, U.S. Geological Service topographical maps, and other reference materials. (See Appendix A.)

#### Drainage basin

The Oregon Water Resources Department has divided the state into 18 drainage basins. Check the map in Appendix H to see which drainage basin contains the study site.

1. What is the name of the drainage basin that contains your assessment area?

#### Physical characteristics of the watershed being assessed (within the drainage basin)

##### Topography

2. What is the watershed's area in square miles? The watershed area is often much smaller than the drainage basin (see Appendix E).
3. Calculate the average slope of the watershed (see Appendix F).

##### Hydrologic profile

4. Is the stream flow in the watershed modified by dams, channelization or levees? (Choose all that are appropriate.)
  - a. Tributary streams to the main stem stream are modified.
  - b. Main stem stream is modified.
  - c. Stream flow is not modified (free-flowing.)
5. Is water being taken out of the stream(s) through active diking, drainage or irrigation districts in the watershed upstream of the assessment area?
  - a. Yes.
  - b. No.

##### Land uses within the watershed

6. What is the dominant land use in the watershed upstream from the assessment area?
  - a. Urban.
  - b. Urbanizing (mix of urban, agriculture and forest uses).
  - c. Agriculture (farming, ranching or grazing).
  - d. Forested or natural area.

#### Watershed Notes

Lower Willamette &  
Sandy Drainage Basin

b. Main stem modified

a. Yes

b.c. agriculture, dominant  
(some urbanization)

Watershed identification

C.C.

**Wetland Characterization (Page 2 of 19)**

**Water quality** (Use more specific water quality information, if available. Contact local DEQ office, or call the DEQ lab at (503) 229-5983 for sampling information.)

7. Consult the most recent State of Oregon Department of Environmental Quality 305(b) Report to determine whether any streams in the study area are listed as a *water quality limited*. (You may want to ask DEQ whether there are any proposed changes.) This information is included in Clean Water Act section 303(d) reporting.
  - a. Streams or portions of streams within the study area are listed as *water quality limited*.
  - b. No streams or portions of streams within the study area are listed as *water quality limited*.
8. Consult the most recent *Oregon Statewide Assessment of Nonpoint Sources of Water Pollution* to determine the water quality condition of stream reaches in the watershed upstream from the assessment area. (If both "b" and "c" apply, choose "c.")
  - a. All upstream reaches are listed as *no problem* (or no data available).
  - b. One or more upstream reaches are listed in *moderate* water quality condition.
  - c. One or more upstream reaches are listed in *severe* water quality condition.

**Biological characteristics of the watershed**

9. Fisheries: Select all that are appropriate and list type if known. (Contact local Oregon Department of Fish and Wildlife office for this information.)

- a. Cold water.
- b. Warm water.
- c. Anadromous.
- d. Wild population.
- e. Introduced or hatchery populations.
- f. None.
- g. Other (list).

Type

See Attached  
ODFW letter**Watershed Notes**

a. Council Creek is identified from mouth to headwaters as 'water quality limited'

(1988 is most recent study)

Council Creek is a secondary, tributary of the Tualatin River.

Watershed identification \_\_\_\_\_

### Wetland Characterization (Page 3 of 19)

### Watershed Notes

10. Are known sensitive, threatened or endangered fish species present in the watershed? If so, list which species.

- |             |                   |
|-------------|-------------------|
|             | <i>Species</i>    |
| a. Yes.     | • Steelhead       |
| b. No.      | • Cutthroat Trout |
| c. Unknown. | • Coho Salmon     |

• Tualatin River Watershed

11. Wildlife species: Select all that are appropriate and list species if known. (Contact local Oregon Department of Fish and Wildlife office for this information.)

- |                     |                |
|---------------------|----------------|
|                     | <i>Species</i> |
| a. Migratory birds. | • See attached |
| b. Big game.        | ODFW Letter    |
| c. Nesting birds.   |                |

12. Are known sensitive, threatened or endangered plant species or wildlife species other than fish present in the watershed? If so, list which species. (Contact local ODFW office or Natural Heritage Council for this information.)

- |  |                |
|--|----------------|
|  | <i>Species</i> |
| <input checked="" type="radio"/> a. Yes. | • See attached |
| b. No.                                   | ODFW Letter    |
| c. Unknown.                              |                |

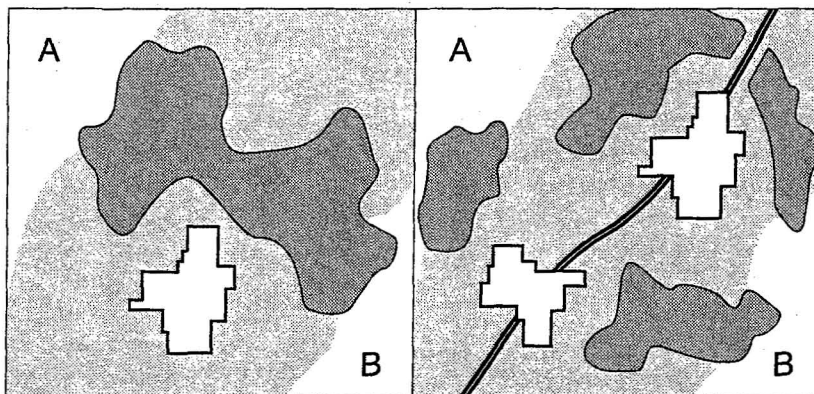
13. Does the watershed provide a natural corridor for fish or wildlife movement? (Observe from aerial photographs.) List whether for fish, wildlife or both. Consider fences, dams and other barriers to travel. Aerial photographs of the watershed area are the best source of information. Fragmented systems have barriers to movement or a section where the natural area is broken by developed area.

A corridor is a landscape feature that enables fish or wildlife species to travel between broad geographical areas. (See Figure 1.)

- a. There are contiguous natural areas that allow species movement, and if barriers exist, they do not stop animal or fish movement.
- b. The natural areas are fragmented, but species movement is still possible.
- c. The habitat system is fragmented, and there are barriers to species movement.

Watershed identification \_\_\_\_\_

## Wetland Characterization (Page 4 of 19)



**Figure 1. Watersheds as corridors for wildlife movement.**

Areas A and B are the end points of a movement corridor through the watershed. Natural areas are shaded darkly, the irregular polygons represent highly developed areas, and the thick black line represents an impassable barrier such as an interstate highway. In the first part of the illustration, the contiguous natural area connects both ends of the corridor. The developed area is a barrier, but it does not obstruct species movement. The second half of the illustration shows fragmented natural areas with an impassable barrier. If the barrier stopped at the smaller developed area and did not continue off the lower left, species movement would still be possible.

14. What are the landscape features at both ends of the movement corridor? (These may lie outside the assessment area.) From an aerial photo, observation or local knowledge, determine whether there are large natural areas at either end of the movement corridor. The natural area does not have to be a wetland.
- Large natural habitat areas are at both ends.
  - One end has a natural habitat area and the other end is developed.
  - Both ends are developed.

## Watershed Notes



The Council Creek Corridor does not have large areas of development at east end of the Corridor. The City of Forest Grove and the City of Cornelius are adjacent to the south side of the corridor, for portions of the stream.

Watershed identification \_\_\_\_\_

CC-1      CC-2      CC-3  
 Wetland 1      Wetland 2      Wetland 3

**Wetland Characterization (Page 5 of 19)**

**Individual wetland sites**

Fill out this part of the characterization for each wetland in the assessment area. Some of the information can be gathered in the office; some must be gathered at the site. You may want to do a rough sketch of the site (doesn't have to be to scale) to refer to back in the office.

**Wetland structure and relation to surrounding landscape**

✓15. What percentage of the area within 500 feet of the wetland's edge is dedicated to the land uses listed below? (From overlay 2 or in the field.)

It is best to determine the land uses from a recent aerial photo. If an aerial photo is not available, measure 500 feet in the field to get an idea of distance to evaluate. Use the following ranges for your answers for each land-use category:

- a. Less than 20%.
- b. Between 20% and 50%.
- c. Greater than 50%.

1. Open Space (includes natural areas, parks and developed recreation areas, but not land designated for Exclusive Forest Use).

2. Agriculture (pasture, cropped lands, orchards, range land).

3. Exclusive Forest Use lands.

4. Developed uses (residential, commercial or industrial—rural and urban).

5. Other (list).

✓16. What is the dominant existing land use within 500 feet of the wetland on the **downstream or down-slope edge** of the wetland? Use the same land-use categories as question 15.

17. What is the wetland's area in acres? (Measure the entire area of contiguous wetland, not just the portion within the assessment area. Use the dimensions of the wetland as outlined on the base map.)

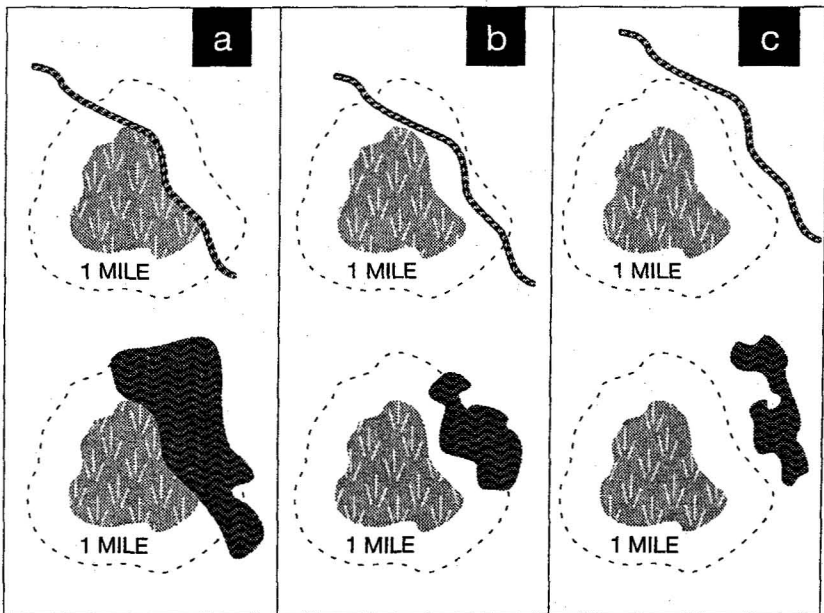
- a. Greater than 5 acres.
- b. Between 0.5 acres and 5 acres.
- c. Less than 0.5 acres.

	CC-1 Wetland 1	CC-2 Wetland 2	CC-3 Wetland 3
1. Open Space (includes natural areas, parks and developed recreation areas, but not land designated for Exclusive Forest Use).	b.	a.	
2. Agriculture (pasture, cropped lands, orchards, range land).	b.	b.	b.
3. Exclusive Forest Use lands.			
4. Developed uses (residential, commercial or industrial—rural and urban).	a.	b.	c.
5. Other (list).			
✓16. What is the dominant existing land use within 500 feet of the wetland on the <b>downstream or down-slope edge</b> of the wetland? Use the same land-use categories as question 15.	2. (Agriculture)	2. (Agriculture)	2./4. (Ag./Resid)
17. What is the wetland's area in acres? (Measure the entire area of contiguous wetland, not just the portion within the assessment area. Use the dimensions of the wetland as outlined on the base map.)			
a. Greater than 5 acres.			
b. Between 0.5 acres and 5 acres.	b.	a.	a.
c. Less than 0.5 acres.			

✓ Questions preceded by a check mark can be completed in the field.

Watershed identification \_\_\_\_\_

**Wetland Characterization (Page 6 of 19)**



**Figure 2. Connectivity to streams, lakes and ponds.**  
 The lightly shaded area represents a wetland, the darkly shaded area represents a lake or pond and the dark line represents a stream. Part "a" shows the wetland connected to a stream, lake or pond, part "b" shows a stream, lake or pond within 1 mile but no surface connection, and part "c" shows no stream, lake or pond within 1 mile and no surface connection.

18. How is the wetland connected to another body of water, such as a stream, lake or pond? (See Figure 2.)

- a. The wetland is connected by surface water to another body of water. This may be by a culvert, irrigation ditch, intermittent stream or perennial stream.
- b. No surface-water connection exists to another body of water, but other bodies of water lie within 1 mile of the wetland.
- c. No surface-water connection exists to another body of water, and no other bodies of water lie within 1 mile of the wetland.

19. Is all or part of the wetland located within the 100-year floodplain (use floodplain maps to determine) or within an enclosed basin? An enclosed basin has no inlet or outlet.

- a. Yes.
- b. No.

	CC-1	CC-2	CC-3
	Wetland 1	Wetland 2	Wetland 3
18. How is the wetland connected to another body of water, such as a stream, lake or pond? (See Figure 2.)	a.	a.	a.
19. Is all or part of the wetland located within the 100-year floodplain (use floodplain maps to determine) or within an enclosed basin? An enclosed basin has no inlet or outlet.	Yes a.	Yes a.	Yes a.

Watershed identification \_\_\_\_\_

CC-1

CC-2

CC-3

Wetland 1

Wetland 2

Wetland 3

**Wetland Characterization (Page 7 of 19)**

20. What percentage of the area within 500 feet of the wetland's edge is **zoned** for each of the land uses listed below?

Use the following ranges for your answers:

- a. Less than 20%
  - b. Between 20% and 50%
  - c. Greater than 50%.
1. Open Space (includes natural areas, parks and developed recreation areas, but not lands zoned for Exclusive Forest Use).
  2. Agriculture (pasture, cropped lands, orchards, range land).
  3. Exclusive Forest Use lands.
  4. Developed uses (residential, commercial, industrial).
  5. Other (list).

b.	b.	b.
b.	b.	b.

**Wetland habitat**

✓21. What percentage of the wetland's area is covered by the following Cowardin wetland classes? ( Cowardin wetland classes refer to a classification of wetland type by vegetation cover. See Appendix D.) Only list those that compose 10% or more of the overall wetland.

The percentages can be estimated in the field or from aerial photographs. Use the following categories for your answers:

- a. Between 70% and 100%.
  - b. 50% or more, but less than 70%.
  - c. 20% or more, but less than 50%.
  - d. 10% or more, but less than 20%.
1. Open water (deep water habitat, greater than or equal to 6.6 feet or 2 meters).
  2. Emergent (includes floating aquatics—herbaceous plants that can tolerate flooding and living in wet soils).
  3. Scrub-shrub (woody vegetation under 20 feet tall).
  4. Forested (woody vegetation 20 feet or taller).

✓22. For urban areas, how many wetland plant species are present? (You need not list the species name.)

- a. More than 5 plant species.
- b. Between 2 and 5 plant species.
- c. 1 plant species (monotypic).


Watershed identification \_\_\_\_\_

CC-1	CC-2	CC-3
Wetland 1	Wetland 2	Wetland 3

**Wetland Characterization (Page 8 of 19)**

- ✓23. What is the dominant wetland vegetation cover type?
- a. Woody vegetation (forested and scrub-shrub).
  - b. Emergent vegetation and ponding, or open water only.
  - c. Emergent vegetation only or wet meadow.

a.	a.	a.
----	----	----

- ✓24. Refer to the diagrams in Figure 3 and select the one that most closely resembles the interspersions of Cowardin wetland classes and, if present, upland inclusions. (An upland inclusion is an island or an upland area surrounded on three sides by wetland.).
- Wetlands composed of only one wetland class or with two wetland classes and a simple pattern have low interspersions. Wetland and upland complexes that have at least two wetland classes and a complex pattern have a moderate interspersions pattern. Wetlands with two or more wetland classes or upland inclusions with a complex pattern and lots of edge have a high interspersions pattern.
- If the wetland you are observing does not reflect any of the diagrams, use the above guidance to determine the complexity of the interspersions pattern and draw a sketch of the wetland.
- a. High.
  - b. Moderate.
  - c. Low.

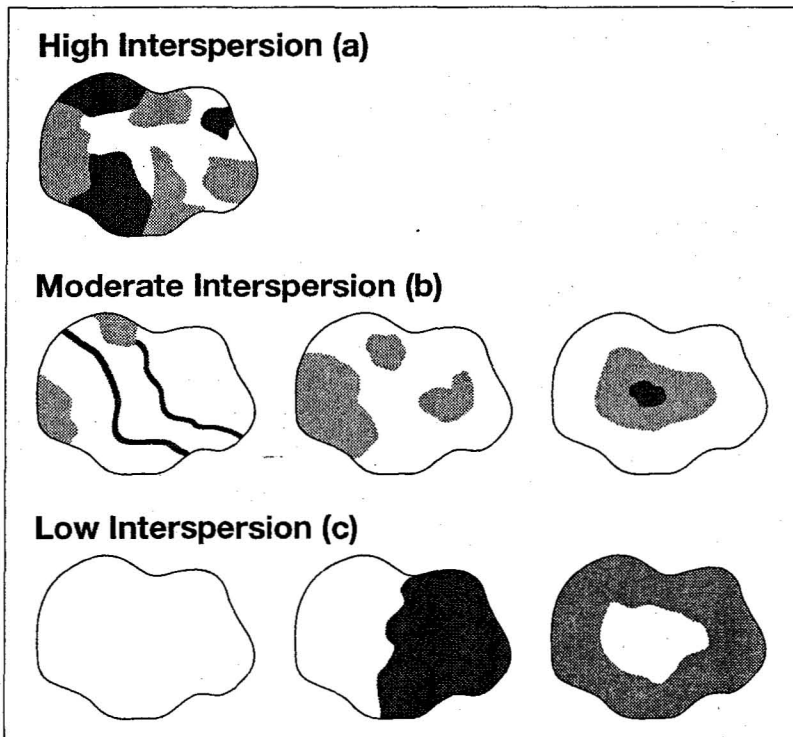


Figure 3. Interspersion of Cowardin classes and upland inclusions.

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Watershed identification \_\_\_\_\_

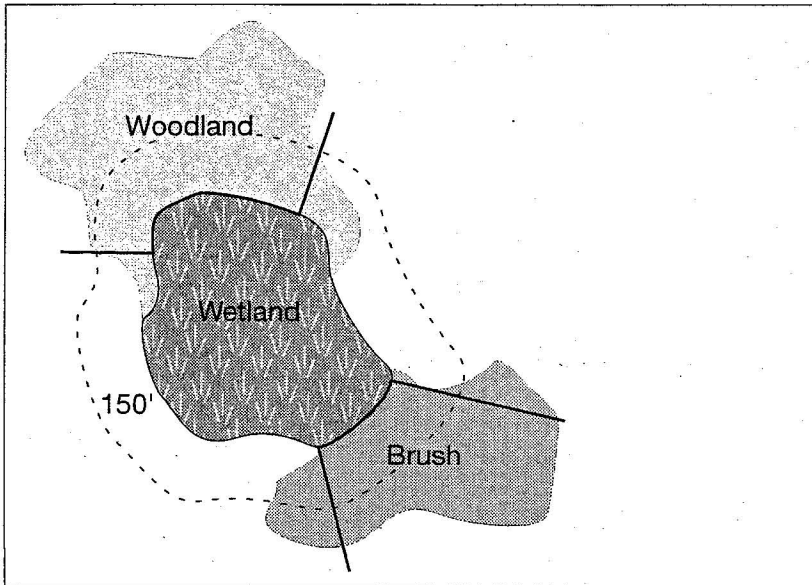
**Wetland Characterization (Page 9 of 19)**

✓25. For **rural areas**: What percentage of the wetland's edge is bordered by upland wildlife habitat that is at least 150 feet wide? Brush, woodland, non-farmed agricultural land and range land are considered upland habitat for this question. Actively farmed lands are not considered wildlife habitat. (See Figure 4.)

- a. Greater than 40%.
- b. Between 10% and 40%.
- c. Less than 10%.

✓26. For **urban areas**: What percentage of the wetland's edge is bordered by a vegetative buffer at least 25 feet wide? A vegetative buffer consists of trees, bushes or vegetation that is not regularly mowed or farmed. (See Figure 5.)

- a. Greater than 40%.
- b. Between 10% and 40%.
- c. Less than 10%.



**Figure 4. Percent of wetland edge bordered by upland habitat (for Question 25).**

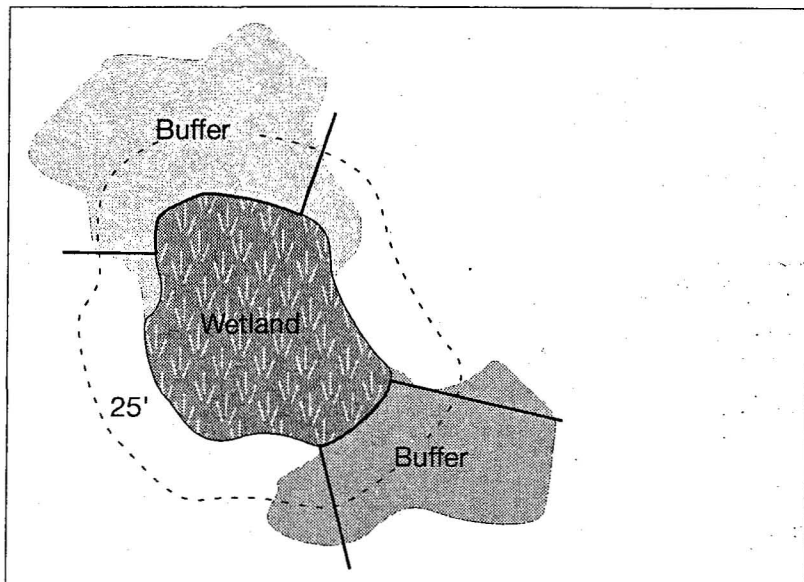
The dashed line delineates the area within 150 feet of the wetland; the "woodland" and "brush" areas are upland habitat; and the lines perpendicular to the wetland edge indicate where the upland habitat adjacent to the wetland habitat is at least 150 feet wide. The dark lines (portions of the wetland bordered by upland habitat at least 150 feet wide) make up roughly one-third (between 10% and 40%) of the wetland perimeter.

	Wetland 1	Wetland 2	Wetland 3
North side	a.	a.	a.
South side	a.	a.	a.

Watershed identification \_\_\_\_\_

**Wetland Characterization (Page 10 of 19)**

	CC-1	CC-2	CC-3
	Wetland 1	Wetland 2	Wetland 3
27. How is the wetland connected to other wetlands? (Look at an aerial photo or map to determine this.) a. Connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, culvert, canal or lake. b. Not connected by surface waters, but other unconnected wetlands lie within a 3-mile radius. c. Not connected to other wetlands by surface waters, and no other unconnected wetlands lie within a 3-mile radius.	a.	a.	a.
28. Estimate the area of unvegetated, open water within the wetland. a. More than 3 acres. b. Greater than 1 acre, up to 3 acres. c. Between 0.5 acre and 1 acre. d. Less than 0.5 acre.	c.	b.	b.



**Figure 5. Percent of wetland edge bordered by vegetative buffer (for Question 26).**

The dashed line delineates the area within 25 feet of the wetland; the vegetative buffer areas are labeled "buffer"; and the lines perpendicular to the wetland edge indicate where the vegetative buffer adjacent to the wetland habitat is at least 25 feet wide. The dark lines (portions of the wetland bordered by a vegetative buffer at least 25 feet wide) make up roughly one-third (between 10% and 40%) of the wetland perimeter.

Watershed identification \_\_\_\_\_

**Wetland Characterization (Page 11 of 19)**

**Fisheries habitat**

29. Are fish present in a stream, lake or pond connected to the wetland.
- a. Salmon, trout or sensitive species are present at some time during the year.
  - b. Species not covered in "a" are present at some time during the year.
  - c. No species are present at any time during the year.

**Streams connected to the wetland**

Complete this section only if the wetland being assessed has an unimpeded surface water connection to a stream.

- ✓30. What is the physical character of the stream channel? To observe stream channel modifications, look for built rock banks, cement sides, straightened areas or other human-created features.
- a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel.
  - b. Only portions of the stream are modified.
  - c. The stream is extensively modified or confined in a non-vegetated channel or pipe.

- ✓31. What percentage of the stream is shaded by streamside (riparian) vegetation?
- a. Greater than 75%.
  - b. Between 50 and 75%.
  - c. 25% or more, but less than 50%.
  - d. Less than 25%.

- ✓32. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders?
- a. Greater than 25%.
  - b. Between 10% and 25%.
  - c. Less than 10%.

**Lakes or ponds** (entire lake or pond and wetland complex)

Complete this section only if the wetland being assessed has a surface water connection to a lake or pond.

33. Does the lake or pond contain areas of deep and shallow water? ("Deep" is defined as more than 6.5 feet deep.)
- a. Yes.
  - b. Cannot be determined.
  - c. No.

	CC-1 Wetland 1	CC-2 Wetland 2	CC-3 Wetland 3
	a.	b.	b.
	a.	a.	a.
	N/A	a.	N/A

Watershed identification \_\_\_\_\_

CC-1

CC-2

CC-3

Wetland 1

Wetland 2

Wetland 3

**Wetland Characterization (Page 12 of 19)**

- ✓34. What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation?
- a. 60% or more.
  - b. 20% or more, but less than 60%.
  - c. Less than 20%.

a.

a.

a.

- ✓35. What percentage of the wetland complex contains cover objects such as submerged logs, floating or submerged vegetation, large rocks or boulders?
- a. Greater than 25%
  - b. Between 10 and 25%
  - c. Less than 10%

**Wetland hydrology**

36. What is the wetland's **primary** source of water? (Determine in the field or in the office. This may be difficult to determine. If a surface water connection exists—stream, lake, ditch—use it as the primary source. If no surface water connection is present, talk to local natural resource people for hints.)
- a. Surface flow, including streams and ditches.
  - b. Precipitation or sheet flow.
  - c. Groundwater, including springs or seeps.

a.

a.

a.

- ✓37. Is there evidence of flooding or ponding during a portion of the growing season? Look for evidence of water fluctuation such as sediment stains on trees, drift lines, surface scour or sediment deposits. Also look at the location of the wetland. Is it in a distinct topographic depression or adjacent to a stream that is known to flood or fluctuate because of storm pulses?
- a. Yes (describe).
  - b. Unable to determine or not applicable.
  - c. No.

Vegetation drift lines,  
Flooding witnessed by staff.

a.

a.

a.

- ✓38. Is water flow out of the wetland restricted (e.g., beaver dam, concrete structure, undersized culvert)?
- a. Yes, the outlet is restricted or the wetland has no outlet.
  - b. Minor restrictions slow down the water (e.g., undersized culvert).
  - c. No, the outlet has unrestricted flow.

c.

b.  
(Road Bridge)

b.  
(Road Bridge)

Watershed identification \_\_\_\_\_

**Wetland Characterization (Page 13 of 19)**

CC-1	CC-2	CC-3
Wetland 1	Wetland 2	Wetland 3

39. If the primary source of water is surface flow, is the water flow into the wetland restricted?

- a. Flow is not restricted, or if blocked, the obstruction can be removed easily.
- b. Permanent blockage to the flow exists but may be breached or a new flow channel created (engineering or earth moving solution).
- c. Flow is restricted and cannot be restored.

a.	a.	a.
----	----	----

40. Has the stream flow or stream bank been modified by human activities less than 1 mile above the wetland? Modifications include dams, channelizations and levees, and confinement of the stream in a pipe.

- a. Yes.
- b. No.

a.	a.	a.
----	----	----

**Public access to wetland site** (select an appropriate area to observe the wetland to answer these questions.)

41. Is the wetland site open to the public for direct access or observation?

- a. Yes, the wetland is open to the public.
- b. Yes, but wetland access is allowed only by permission of the landowner or managing entity.
- c. No, access is not allowed.

a.	a/b.	c.
----	------	----

42. Are there visible hazards to the public at the wetland site? (Examples: busy road adjacent to the site, and no buffer or sidewalk exists; steep embankment; and contaminated water.)

- a. No.
- b. One or two visible safety hazards exist (describe).
- c. More than two visible safety hazards exist (describe).

a.	b.	b.
----	----	----

43. Are there other natural landscape features, such as a stream, lake, pond, forest or agricultural land contiguous or adjacent to the wetland?

- a. Yes. (List type and extent.)
- b. No.

<u>a.</u> • Riparian Area • Agriculture • Metro Park	<u>a.</u> • Agriculture (North • Metro Park North	<u>a.</u> • Agriculture
---	---	----------------------------

Watershed identification \_\_\_\_\_

CC-1 | CC-2 | CC-3  
 Wetland 1 | Wetland 2 | Wetland 3

**Wetland Characterization (Page 14 of 19)**

✓44. Is there existing physical public access to features listed in Question 43? If not, can such access be created easily, or can other habitats be observed from the site? For a stream, pond or lake, access may require dry ground to the water's edge. Stream access could also be at a road crossing, but consider the safety at such locations

- a. Public access to other habitats exists or can be created easily.
- b. Public access doesn't exist and can't be created easily, but observation of other features can be made from the site.
- c. Public access doesn't exist and can't be created easily. In addition, observation of other features can't be made from the site.

a.  
(Metro Park)

a,  
(Metro Park)

c.

✓45. Does it appear that access to a viewing spot or wetland edge is available for individuals with limited mobility? (To see whether the site meets ADA requirements, a more thorough examination should be done.)

- a. Yes.
- b. No. (List physical barriers.)

a.  
(Sues House/Metro PK)

a/b.  
(Potential Public Access Metro PK)

b.  
(Private Property, fences and homes)

✓46. Is there a public access point within 250 feet of the wetland's edge? Access points include parking lots, transit stops, bike lanes, trails and water courses. Maintained means that the area is designated as a car or transit area by the managing entity. Unmaintained would be a road pull-off or other area that people use but is not designated for such use. Describe the type of access.

- a. Yes, a maintained access point exists (describe).
- b. Yes, an unmaintained access point exists (describe).
- c. No access point exists, or the access point is hazardous.

c.

c.

c.

**Recreation**

✓47. Is the wetland accessible by boat?

- a. Boat launching areas or access points exist on site or within 1/2 mile on a connected lake, river, bay or other body of water.
- b. Potential to develop boat launching areas or access points exists, or such features are more than 1/2 mile but less than 1 mile from the wetland.
- c. No boat launching areas or access points exist within 1 mile of the wetland, and potential to develop launching areas or access points is limited.

c.

c.

c.

Watershed identification \_\_\_\_\_

CC-1 | CC-2 | CC-3  
 Wetland 1 | Wetland 2 | Wetland 3

**Wetland Characterization (Page 17 of 19)**

✓48. Are there trails, viewing areas or other structures that guide user movement to a particular area or areas in or around the wetland?  
 a. Yes, developed or maintained trails or viewing areas exist.  
 b. Yes, undeveloped trails or viewing areas exist that do not disrupt wildlife or plant habitat.  
 c. No trails or viewing areas exist, or those that do disrupt wildlife or plant habitat.

c.	b. (private paths exist)	c
----	-----------------------------	---

49. Is fishing allowed at the wetland or connected water body? (Contact local Oregon Department of Fish and Wildlife office.) Answer "not applicable" if question 18 was answered "b" or "c," unless question 21 indicates that 10% or more of the wetland's area is covered by open water.  
 a. Yes (either all or part of the year).  
 b. No.  
 c. Not applicable.

a.	a.	a.
----	----	----

50. Is hunting allowed at the wetland? (If the wetland is within the city limits, hunting is not allowed. Otherwise, contact the local Oregon Department of Fish and Wildlife office for this information.)  
 a. Yes (either all or part of the year).  
 b. No.

b.	b.	b.
----	----	----

**Aesthetics**

✓51. For **rural areas**, what is the extent of visual contrast with the surrounding landscape? (See Figure 6.)  
 a. Significant contrast with surrounding landscape.  
 b. Limited contrast with surrounding landscape.  
 c. Little or no contrast with surrounding landscape.

/	/	/
---	---	---

✓52. For **urban areas**, what is the visual character of the surrounding area? (See Figure 7.)  
 a. Open space or naturally landscaped areas.  
 b. Areas landscaped or manipulated by people.  
 c. Developed with no landscaping.

a. + b. Currently undeveloped, scheduled for development	a. North b. South	a. North b. South
---	----------------------	----------------------

✓53. Are there visual detractors at the wetland site such as abandoned cars, litter, shopping carts or other objects that distract the viewer from the wetland?  
 a. Yes.  
 b. No.

<del>b.</del> b.	b.	a.
---------------------	----	----

Watershed identification \_\_\_\_\_

CC-1      CC-2      CC-3

Wetland 1      Wetland 2      Wetland 3

**wetland Characterization (Page 19 of 19)**

✓56. What noises are audible at the primary viewing location(s)?

- a. Bird and wildlife noises and other naturally occurring sounds.
- b. Some traffic and other similar background sounds are audible in addition to naturally occurring sounds.
- c. Continuous traffic or other intrusive noise is audible in addition to naturally occurring sounds.
- d. Continuous traffic or other intrusive noise is audible, but no naturally occurring sounds are.

a./b.      a./b.      a./b.  
 \* Depends where you are standing in these wetland areas.

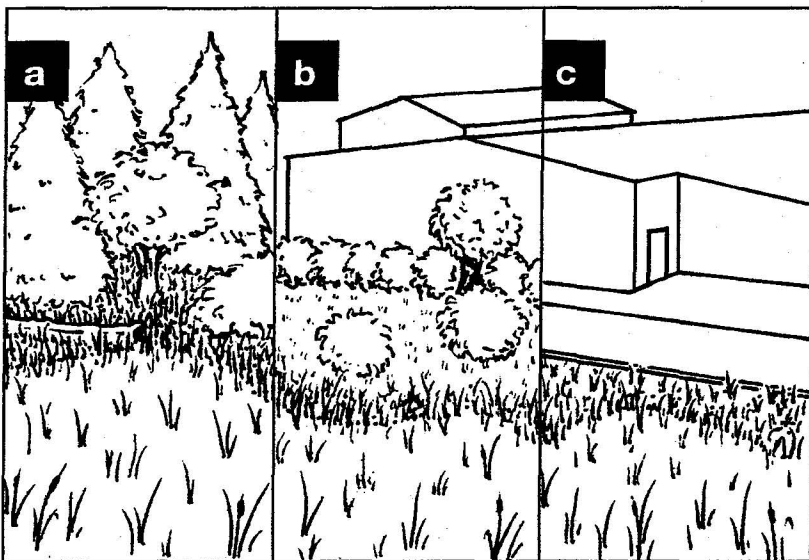
✓57. How much of the wetland is visible from the viewing area(s)? Describe the view.

- a. Greater than 50%.
- b. Between 25% and 50%.
- c. Less than 25%.

b.      c.      b.  
 (Sous's House Metro)

✓58. How many Cowardin classes are visible from the primary viewing area(s)? (See question 21 for list of Cowardin classes to use.)

- a. More than two.
- b. Two
- c. One



**Figure 7. Visual character of urban wetlands.**  
 Beginning with the left part, this figure shows an urban wetland with naturally landscaped areas, areas landscaped by people and with unlandscaped developed areas.

Watershed identification \_\_\_\_\_

CC-1      CC-2      CC-3  
 Wetland 1      Wetland 2      Wetland 3

**Wetland Characterization (Page 18 of 19)**

- ✓54. If the wetland contains visual detractors, as indicated in question 53, can they be removed easily?
- a. Yes.
  - b. No.

b.	b.	b.
----	----	----

**Locate the primary viewing area(s) for the following four questions (be sure to indicate the location on the overlay).**

- ✓55. What odors are present at the primary viewing location(s)?
- a. Natural, pleasant odors only.
  - b. Unpleasant odors such as automobile exhaust or stench from a sewage treatment plant are present at certain times.
  - c. Unpleasant odors are distinct and continuously present.

a.	a.	a.
----	----	----



**Figure 6. Visual contrast.**  
 The top part of the figure shows a wetland with significant visual contrast with the surrounding landscape. The bottom part shows a wetland with little or no visual contrast with the surrounding landscape.

## Appendix B Wetland Characterization

During the original field work conducted on May 8, 2002 City staff identified this site as RRD-1, it was changed to TD-3 and during the processing of information, inventorying and analysis.

Field Work - 5/8/02

RRD-1

Post Field Work - 5/8/02

TD- 3

### Notes

The site is located  
~~adj~~ adjacent to  
S. 1st Ave and the  
RR Tracks. It was  
surveyed by DSL  
staff on 5/8/02.

It is identified as  
RRD-1

NEW ID. #  
is 'TD-3'

Watershed identification \_\_\_\_\_

**Wetland Characterization (Page 1 of 19)**

*Watershed Notes*

**Watershed setting**

All questions pertaining to the watershed can be answered in the office from aerial photographs, U.S. Geological Service topographical maps, and other reference materials. (See Appendix A.)

**Drainage basin**

The Oregon Water Resources Department has divided the state into 18 drainage basins. Check the map in Appendix H to see which drainage basin contains the study site.

1. What is the name of the drainage basin that contains your assessment area?

Lower Willamette E.  
Sandy Drainage Basin

**Physical characteristics of the watershed being assessed (within the drainage basin)**

**Topography**

2. What is the watershed's area in square miles? The watershed area is often much smaller than the drainage basin (see Appendix E).
3. Calculate the average slope of the watershed (see Appendix F).

**Hydrologic profile**

4. Is the stream flow in the watershed modified by dams, channelization or levees? (Choose all that are appropriate.)
  - a. Tributary streams to the main stem stream are modified.
  - b. Main stem stream is modified.
  - c. Stream flow is not modified (free-flowing.)

b.

5. Is water being taken out of the stream(s) through active diking, drainage or irrigation districts in the watershed upstream of the assessment area?

- a. Yes.
- b. No.

a.

**Land uses within the watershed**

6. What is the dominant land use in the watershed upstream from the assessment area?
  - a. Urban.
  - b. Urbanizing (mix of urban, agriculture and forest uses).
  - c. Agriculture (farming, ranching or grazing).
  - d. Forested or natural area.

c.

Watershed identification \_\_\_\_\_

**Wetland Characterization (Page 2 of 19)**

Watershed Notes

**Water quality** (Use more specific water quality information, if available. Contact local DEQ office, or call the DEQ lab at (503) 229-5983 for sampling information.)

7. Consult the most recent State of Oregon Department of Environmental Quality 305(b) Report to determine whether any streams in the study area are listed as a *water quality limited*. (You may want to ask DEQ whether there are any proposed changes.) This information is included in Clean Water Act section 303(d) reporting.
  - a. Streams or portions of streams within the study area are listed as *water quality limited*.
  - b. No streams or portions of streams within the study area are listed as *water quality limited*.
8. Consult the most recent *Oregon Statewide Assessment of Nonpoint Sources of Water Pollution* to determine the water quality condition of stream reaches in the watershed upstream from the assessment area. (If both "b" and "c" apply, choose "c.")
  - a. All upstream reaches are listed as *no problem* (or no data available).
  - b. One or more upstream reaches are listed in *moderate* water quality condition.
  - c. One or more upstream reaches are listed in *severe* water quality condition.

b.

**Biological characteristics of the watershed**

9. Fisheries: Select all that are appropriate and list type if known. (Contact local Oregon Department of Fish and Wildlife office for this information.)

**Type**

- a. Cold water.
- b. Warm water.
- c. Anadromous.
- d. Wild population.
- e. Introduced or hatchery populations.
- f. None.
- g. Other (list).

Watershed identification \_\_\_\_\_

### Wetland Characterization (Page 3 of 19)

Watershed Notes

10. Are known sensitive, threatened or endangered fish species present in the watershed? If so, list which species.

*Species*

- a. Yes.
- b. No.
- c. Unknown.

No

11. Wildlife species: Select all that are appropriate and list species if known. (Contact local Oregon Department of Fish and Wildlife office for this information.)

*Species*

- a. Migratory birds.
- b. Big game.
- c. Nesting birds.

12. Are known sensitive, threatened or endangered plant species or wildlife species other than fish present in the watershed? If so, list which species. (Contact local ODFW office or Natural Heritage Council for this information.)

*Species*

- a. Yes.
- b. No.
- c. Unknown.

No

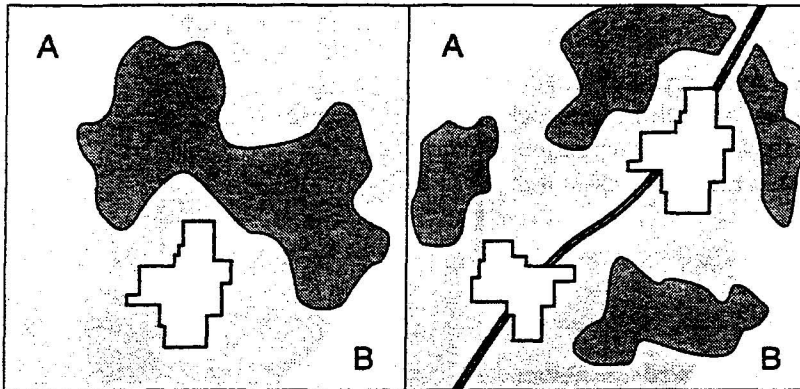
13. Does the watershed provide a natural corridor for fish or wildlife movement? (Observe from aerial photographs.) **List whether for fish, wildlife or both.** Consider fences, dams and other barriers to travel. Aerial photographs of the watershed area are the best source of information. Fragmented systems have barriers to movement or a section where the natural area is broken by developed area.

A corridor is a landscape feature that enables fish or wildlife species to travel between broad geographical areas. (See Figure 1.)

- a. There are contiguous natural areas that allow species movement, and if barriers exist, they do not stop animal or fish movement.
- b. The natural areas are fragmented, but species movement is still possible.
- c. The habitat system is fragmented, and there are barriers to species movement.

No

N/A



**Figure 1. Watersheds as corridors for wildlife movement.**

Areas A and B are the end points of a movement corridor through the watershed. Natural areas are shaded darkly, the irregular polygons represent highly developed areas, and the thick black line represents an impassable barrier such as an interstate highway. In the first part of the illustration, the contiguous natural area connects both ends of the corridor. The developed area is a barrier, but it does not obstruct species movement. The second half of the illustration shows fragmented natural areas with an impassable barrier. If the barrier stopped at the smaller developed area and did not continue off the lower left, species movement would still be possible.

13. Does the watershed provide a natural corridor for fish or wildlife movement? (Observe from aerial photographs.) List whether for fish, wildlife or both. Consider fences, dams and other barriers to travel. Aerial photographs of the watershed area are the best source of information. Fragmented systems have barriers to movement or a section where the natural area is broken by developed area.

A corridor is a landscape feature that enables fish or wildlife species to travel between broad geographical areas. (See Figure 1.)

- a. There are contiguous natural areas that allow species movement, and if barriers exist, they do not stop animal or fish movement.
  - b. The natural areas are fragmented, but species movement is still possible.
  - c. The habitat system is fragmented, and there are barriers to species movement.
14. What are the landscape features at both ends of the movement corridor? (These may lie outside the assessment area.) From an aerial photo, observation or local knowledge, determine whether there are large natural areas at either end of the movement corridor. The natural area does not have to be a wetland.
- a. Large natural habitat areas are at both ends.
  - b. One end has a natural habitat area and the other end is developed.
  - c. Both ends are developed.

Watershed Notes

NOTE: By definition it within UGB

= URBAN

start looking at each wetland unit

RRD-1

**Individual wetland sites**

Fill out this part of the characterization for each wetland in the assessment area. Some of the information can be gathered in the office; some must be gathered at the site. You may want to do a rough sketch of the site (doesn't have to be to scale) to refer to back in the office.

**Wetland structure and relation to surrounding landscape** (fills w/ use of photo)

15. What percentage of the area within 500 feet of the wetland's edge is dedicated to the land uses listed below? (From overlay 2 or in the field.)

It is best to determine the land uses from a recent aerial photo. If an aerial photo is not available, measure 500 feet in the field to get an idea of distance to evaluate. Use the following ranges for your answers for each land-use category:

- a. Less than 20%.
- b. Between 20% and 50%.
- c. Greater than 50%.

- 1. Open Space (includes natural areas, parks and developed recreation areas, but not land designated for Exclusive Forest Use).
- 2. Agriculture (pasture, cropped lands, orchards, range land).
- 3. Exclusive Forest Use lands.
- 4. Developed uses (residential, commercial or industrial — rural and urban).
- 5. Other (list).

16. What is the dominant existing land use within 500 feet of the wetland on the downstream or down-slope edge of the wetland? Use the same land-use categories as question 15.

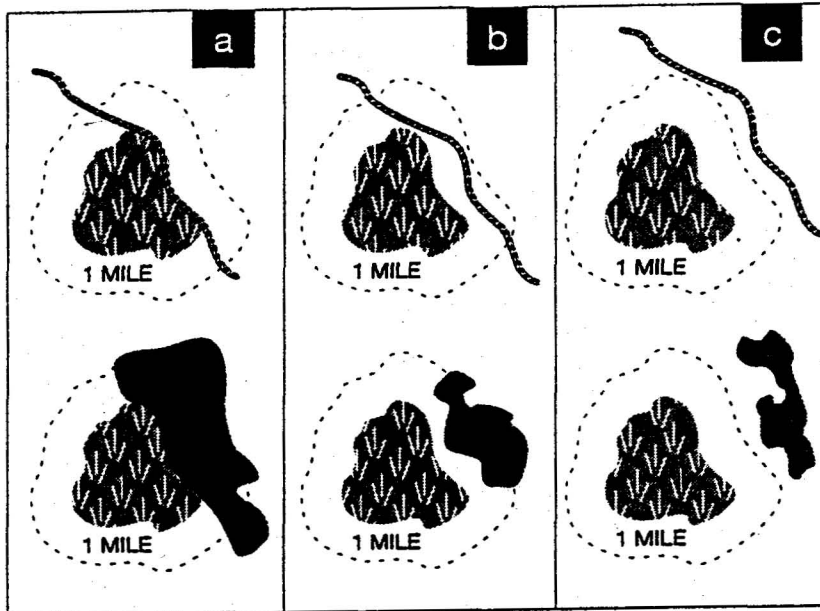
17. What is the wetland's area in acres? (Measure the entire area of contiguous wetland, not just the portion within the assessment area. Use the dimensions of the wetland as outlined on the base map.)

- a. Greater than 5 acres.
- b. Between 0.5 acres and 5 acres.
- c. Less than 0.5 acres.

	Wetland 1	Wetland 2	Wetland 3
15. What percentage of the area within 500 feet of the wetland's edge is dedicated to the land uses listed below? (From overlay 2 or in the field.)			
16. What is the dominant existing land use within 500 feet of the wetland on the downstream or down-slope edge of the wetland? Use the same land-use categories as question 15.		Residential	
17. What is the wetland's area in acres? (Measure the entire area of contiguous wetland, not just the portion within the assessment area. Use the dimensions of the wetland as outlined on the base map.)			

Questions preceded by a check mark can be completed in the field.

RRD-1



**Figure 2. Connectivity to streams, lakes and ponds.**  
 The lightly shaded area represents a wetland, the darkly shaded area represents a lake or pond and the dark line represents a stream. Part "a" shows the wetland connected to a stream, lake or pond, part "b" shows a stream, lake or pond within 1 mile but no surface connection, and part "c" shows no stream, lake or pond within 1 mile and no surface connection.

Wetland 1      Wetland 2      Wetland 3

Wetland 1	Wetland 2	Wetland 3
a.		
b.		

✓  
 may need  
 Field checked

18. How is the wetland connected to another body of water, such as a stream, lake or pond? (See Figure 2.)

- a. The wetland is connected by surface water to another body of water. This may be by a culvert, irrigation ditch, intermittent stream or perennial stream.
- b. No surface-water connection exists to another body of water, but other bodies of water lie within 1 mile of the wetland.
- c. No surface-water connection exists to another body of water, and no other bodies of water lie within 1 mile of the wetland.

NEED  
 FEMA  
 map

19. Is all or part of the wetland located within the 100-year floodplain (use floodplain maps to determine) or within an enclosed basin? An enclosed basin has no inlet or outlet.

- a. Yes.
- b. No.

RFD-1

Wetland 1      Wetland 2      Wetland 3

20. What percentage of the area within 500 feet of the wetland's edge is zoned for each of the land uses listed below?

YTD  
20NC  
not

- Use the following ranges for your answers:
- a. Less than 20%
  - b. Between 20% and 50%
  - c. Greater than 50%.

- 1. Open Space (includes natural areas, parks and developed recreation areas, but not lands zoned for Exclusive Forest Use).
- 2. Agriculture (pasture, cropped lands, orchards, range land).
- 3. Exclusive Forest Use lands.
- 4. Developed uses (residential, commercial, industrial).
- 5. Other (list).

c.

**Wetland habitat**

21. What percentage of the wetland's area is covered by the following Cowardin wetland classes? (Cowardin wetland classes refer to a classification of wetland type by vegetation cover. See Appendix D.) Only list those that compose 10% or more of the overall wetland.

The percentages can be estimated in the field or from aerial photographs. Use the following categories for your answers:

- a. Between 70% and 100%.
- b. 50% or more, but less than 70%.
- c. 20% or more, but less than 50%.
- d. 10% or more, but less than 20%.

1st  
2nd  
3rd  
each

- 1. Open water (deep water habitat, greater than or equal to 6.6 feet or 2 meters). ==>
- 2. Emergent (includes floating aquatics—herbaceous plants that can tolerate flooding and living in wet soils). ————
- 3. Scrub-shrub (woody vegetation under 20 feet tall). ==>>
- 4. Forested (woody vegetation 20 feet or taller). ==>>>

a

22. For urban areas, how many wetland plant species are present? (You need not list the species name.)

- a. More than 5 plant species.
- b. Between 2 and 5 plant species.
- c. 1 plant species (monotypic).

dominant

b.

23. What is the dominant wetland vegetation cover type?

- a. Woody vegetation (forested and scrub-shrub).
- b. Emergent vegetation and ponding, or open water only.
- c. Emergent vegetation only or wet meadow.

c

23b note strata

- a) two or more
- b) 1 strata with > 5 species
- c) 1                      ≤ 5

C1

RRD-1

24. Refer to the diagrams in Figure 3 and select the one that most closely resembles the interspersions of Cowardin wetland classes and, if present, upland inclusions. (An upland inclusion is an island or an upland area surrounded on three sides by wetland.)

Wetlands composed of only one wetland class or with two wetland classes and a simple pattern have low interspersions. Wetland and upland complexes that have at least two wetland classes and a complex pattern have a moderate interspersions pattern. Wetlands with two or more wetland classes or upland inclusions with a complex pattern and lots of edge have a high interspersions pattern. If the wetland you are observing does not reflect any of the diagrams, use the above guidance to determine the complexity of the interspersions pattern and draw a sketch of the wetland.

- a. High.
- b. Moderate.
- c. Low.

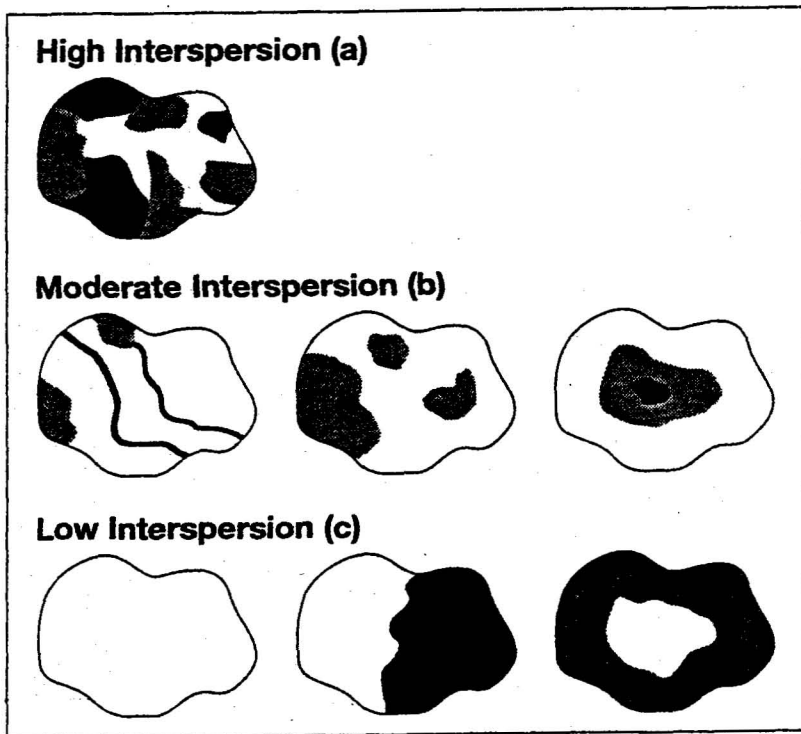


Figure 3. Interspersion of Cowardin classes and upland inclusions.

\* NOTE: remember to include open water as Cowardin unit (OW)

Wetland 1	Wetland 2	Wetland 3
c.		

RRD-1

Wetland 1      Wetland 2      Wetland 3

✓25. For rural areas: What percentage of the wetland's edge is bordered by upland wildlife habitat that is at least 150 feet wide? Brush, woodland, non-farmed agricultural land and range land are considered upland habitat for this question. Actively farmed lands are not considered wildlife habitat. (See Figure 4.)

- a. Greater than 40%.
- b. Between 10% and 40%.
- c. Less than 10%.

N/A

✓26. For urban areas: What percentage of the wetland's edge is bordered by a vegetative buffer at least 25 feet wide? A vegetative buffer consists of trees, bushes or vegetation that is not regularly mowed or farmed. (See Figure 5.)

air photo

- a. Greater than 40%.
- b. Between 10% and 40%.
- c. Less than 10%.

C.

✓27. How is the wetland connected to other wetlands? (Look at an aerial photo or map to determine this.)

my  
red  
rtd  
critic

- a. Connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, culvert, canal or lake.
- b. Not connected by surface waters, but other unconnected wetlands lie within a 3-mile radius.
- c. Not connected to other wetlands by surface waters, and no other unconnected wetlands lie within a 3-mile radius.

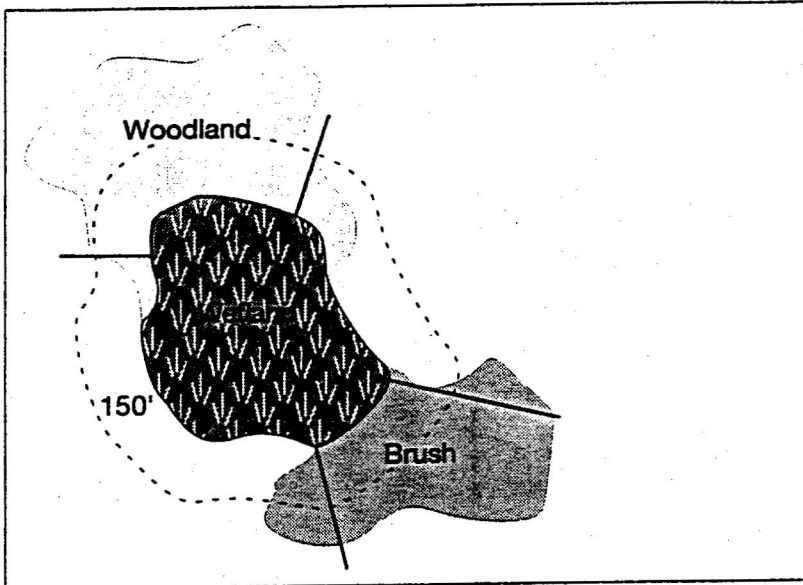
Look at  
CWS  
Map

a.

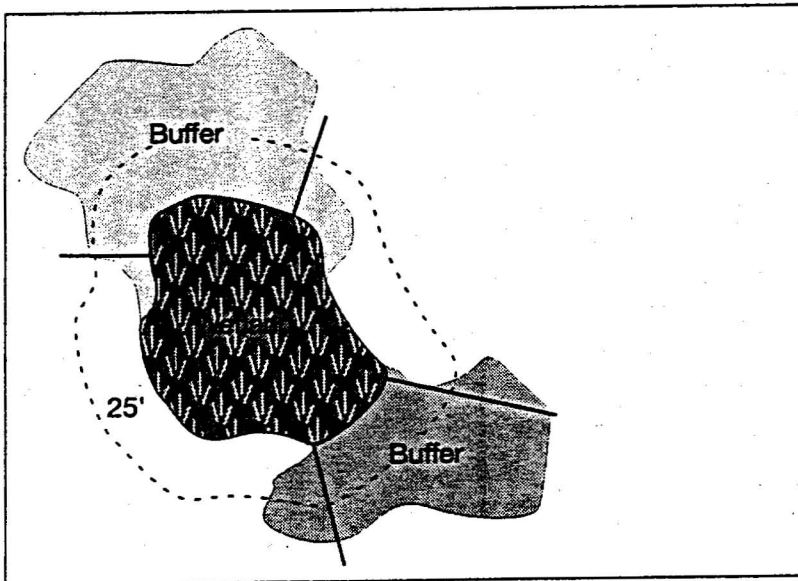
✓28. Estimate the area of unvegetated, open water within the wetland.

- a. More than 3 acres.      for now - estimate what would be like
- b. Greater than 1 acre, up to 3 acres.      about mid-summer
- c. Between 0.5 acre and 1 acre.
- d. Less than 0.5 acre.

d.



**Figure 4. Percent of wetland edge bordered by upland habitat (for Question 25).**  
 The dashed line delineates the area within 150 feet of the wetland; the "woodland" and "brush" areas are upland habitat; and the lines perpendicular to the wetland edge indicate where the upland habitat adjacent to the wetland habitat is at least 150 feet wide. The dark lines (portions of the wetland bordered by upland habitat at least 150 feet wide) make up roughly one-third (between 10% and 40%) of the wetland perimeter.



**Figure 5. Percent of wetland edge bordered by vegetative buffer (for Question 26).**  
 The dashed line delineates the area within 25 feet of the wetland; the vegetative buffer areas are labeled "buffer"; and the lines perpendicular to the wetland edge indicate where the vegetative buffer adjacent to the wetland habitat is at least 25 feet wide. The dark lines (portions of the wetland bordered by a vegetative buffer at least 25 feet wide) make up roughly one-third (between 10% and 40%) of the wetland perimeter.

Wetland 1	Wetland 2	Wetland 3

RRD-1

Wetland 1      Wetland 2      Wetland 3

**Fisheries habitat**

29. Are fish present in a stream, lake or pond connected to the wetland.
- a. Salmon, trout or sensitive species are present at some time during the year.
  - b. Species not covered in "a" are present at some time during the year.
  - c. No species are present at any time during the year.

**Streams connected to the wetland**

Complete this section only if the wetland being assessed has an unimpeded surface water connection to a stream.

- ✓30. What is the physical character of the stream channel? To observe stream channel modifications, look for built rock banks, cement sides, straightened areas or other human-created features.
- a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel.
  - b. Only portions of the stream are modified.
  - c. The stream is extensively modified or confined in a non-vegetated channel or pipe.

- ✓31. What percentage of the stream is shaded by streamside (riparian) vegetation?
- a. Greater than 75%.
  - b. Between 50 and 75%.
  - c. 25% or more, but less than 50%.
  - d. Less than 25%.

- ✓32. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders?
- a. Greater than 25%.
  - b. Between 10% and 25%.
  - c. Less than 10%.

**Lakes or ponds** (entire lake or pond and wetland complex)

Complete this section only if the wetland being assessed has a surface water connection to a lake or pond.

33. Does the lake or pond contain areas of deep and shallow water? ("Deep" is defined as more than 6.5 feet deep.)
- a. Yes.
  - b. Cannot be determined.
  - c. No.

Wetland 1	Wetland 2	Wetland 3
	Regulated as wetland. (Look CWS map)	
C.		
	d.	
C.		

RRP-1

- ✓34. What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation?
  - a. 60% or more.
  - b. 20% or more, but less than 60%.
  - c. Less than 20%.
- ✓35. What percentage of the wetland complex contains cover objects such as submerged logs, floating or submerged vegetation, large rocks or boulders?
  - a. Greater than 25%
  - b. Between 10 and 25%
  - c. Less than 10%

**Wetland hydrology**

- 36. What is the wetland's **primary** source of water? (Determine in the field or in the office. This may be difficult to determine. If a surface water connection exists—stream, lake, ditch—use it as the primary source. If no surface water connection is present, talk to local natural resource people for hints.)
  - a. Surface flow, including streams and ditches.
  - b. Precipitation or sheet flow.
  - c. Groundwater, including springs or seeps.
- ✓37. Is there evidence of flooding or ponding during a portion of the growing season? Look for evidence of water fluctuation such as sediment stains on trees, drift lines, surface scour or sediment deposits. Also look at the location of the wetland. Is it in a distinct topographic depression or adjacent to a stream that is known to flood or fluctuate because of storm pulses?
  - a. Yes (describe).
  - b. Unable to determine or not applicable.
  - c. No.
- ✓38. Is water flow out of the wetland restricted (e.g., beaver dam, concrete structure, undersized culvert)?
  - a. Yes, the outlet is restricted or the wetland has no outlet.
  - b. Minor restrictions slow down the water (e.g., undersized culvert).
  - c. No, the outlet has unrestricted flow.

	Wetland 1	Wetland 2	Wetland 3
✓34. What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation?			
✓35. What percentage of the wetland complex contains cover objects such as submerged logs, floating or submerged vegetation, large rocks or boulders?	c.		
36. What is the wetland's primary source of water? (Determine in the field or in the office. This may be difficult to determine. If a surface water connection exists—stream, lake, ditch—use it as the primary source. If no surface water connection is present, talk to local natural resource people for hints.)			
✓37. Is there evidence of flooding or ponding during a portion of the growing season? Look for evidence of water fluctuation such as sediment stains on trees, drift lines, surface scour or sediment deposits. Also look at the location of the wetland. Is it in a distinct topographic depression or adjacent to a stream that is known to flood or fluctuate because of storm pulses?	c.		
✓38. Is water flow out of the wetland restricted (e.g., beaver dam, concrete structure, undersized culvert)?	a.		

RRD-1

39. If the primary source of water is surface flow, is the water flow into the wetland restricted?
- a. Flow is not restricted, or if blocked, the obstruction can be removed easily.
  - b. Permanent blockage to the flow exists but may be breached or a new flow channel created (engineering or earth moving solution).
  - c. Flow is restricted and cannot be restored.
40. Has the stream flow or stream bank been modified by human activities less than 1 mile above the wetland? Modifications include dams, channelizations and levees, and confinement of the stream in a pipe.
- a. Yes.
  - b. No.

**Public access to wetland site** (select an appropriate area to observe the wetland to answer these questions.)

41. Is the wetland site open to the public for direct access or observation?
- a. Yes, the wetland is open to the public.
  - b. Yes, but wetland access is allowed only by permission of the landowner or managing entity.
  - c. No, access is not allowed.
42. Are there visible hazards to the public at the wetland site? (Examples: busy road adjacent to the site, and no buffer or sidewalk exists; steep embankment; and contaminated water.)
- a. No.
  - b. One or two visible safety hazards exist (describe).
  - c. More than two visible safety hazards exist (describe).
43. Are there other natural landscape features, such as a stream, lake, pond, forest or agricultural land contiguous or adjacent to the wetland?
- a. Yes. (List type and extent.)
  - b. No.

NY into  
4 for  
location  
-  
centration  
nctions

Wetland 1	Wetland 2	Wetland 3
C.		
a.		
C.		
C.	RR Tracks	steep embankment
b.		

44. Is there existing physical public access to features listed in Question 43? If not, can such access be created easily, or can other habitats be observed from the site? For a stream, pond or lake, access may require dry ground to the water's edge. Stream access could also be at a road crossing, but consider the safety at such locations
- Public access to other habitats exists or can be created easily.
  - Public access doesn't exist and can't be created easily, but observation of other features can be made from the site.
  - Public access doesn't exist and can't be created easily. In addition, observation of other features can't be made from the site.

45. Does it appear that access to a viewing spot or wetland edge is available for individuals with limited mobility? (To see whether the site meets ADA requirements, a more thorough examination should be done.)

- Yes
- No. (List physical barriers.)

46. Is there a public access point within 250 feet of the wetland's edge? Access points include parking lots, transit stops, bike lanes, trails and water courses. Maintained means that the area is designated as a car or transit area by the managing entity. Unmaintained would be a road pull-off or other area that people use but is not designated for such use. Describe the type of access.

- Yes, a maintained access point exists (describe).
- Yes, an unmaintained access point exists (describe).
- No access point exists, or the access point is hazardous.

### Recreation

47. Is the wetland accessible by boat?
- Boat launching areas or access points exist on site or within 1/2 mile on a connected lake, river, bay or other body of water.
  - Potential to develop boat launching areas or access points exists, or such features are more than 1/2 mile but less than 1 mile from the wetland.
  - No boat launching areas or access points exist within 1 mile of the wetland, and potential to develop launching areas or access points is limited.

Wetland 1	Wetland 2	Wetland 3
N/A		
(a) YES	Public sidewalk	
	a. - (sidewalk)	
C.		

- ✓48. Are there trails, viewing areas or other structures that guide user movement to a particular area or areas in or around the wetland?
  - a. Yes, developed or maintained trails or viewing areas exist.
  - b. Yes, undeveloped trails or viewing areas exist that do not disrupt wildlife or plant habitat.
  - c. No trails or viewing areas exist, or those that do disrupt wildlife or plant habitat.
  
- 49. Is fishing allowed at the wetland or connected water body? (Contact local Oregon Department of Fish and Wildlife office.) Answer "not applicable" if question 18 was answered "b" or "c," unless question 21 indicates that 10% or more of the wetland's area is covered by open water.
  - a. Yes (either all or part of the year).
  - b. No.
  - c. Not applicable.
  
- 50. Is hunting allowed at the wetland? (If the wetland is within the city limits, hunting is not allowed. Otherwise, contact the local Oregon Department of Fish and Wildlife office for this information.)
  - a. Yes (either all or part of the year).
  - b. No.

**Aesthetics**

- ✓51. For rural areas, what is the extent of visual contrast with the surrounding landscape? (See Figure 6.)
  - a. Significant contrast with surrounding landscape.
  - b. Limited contrast with surrounding landscape.
  - c. Little or no contrast with surrounding landscape.
  
- ✓52. For urban areas, what is the visual character of the surrounding area? (See Figure 7.)
  - a. Open space or naturally landscaped areas.
  - b. Areas landscaped or manipulated by people.
  - c. Developed with no landscaping.
  
- ✓53. Are there visual detractors at the wetland site such as abandoned cars, litter, shopping carts or other objects that distract the viewer from the wetland?
  - a. Yes.
  - b. No.
  
- ✓54. If the wetland contains visual detractors, as indicated in question 53, can they be removed easily?
  - a. Yes.
  - b. No.

	Wetland 1	Wetland 2	Wetland 3
48.	c.		
49.	b. c.		
50.	b.		
51.	/		
52.	a/b/c		
53.	b.		
54.	a.		

Locate the primary viewing area(s) for the following four questions (be sure to indicate the location on the overlay).

- 55 What odors are present at the primary viewing location(s)?
- a. Natural, pleasant odors only.
  - b. Unpleasant odors such as automobile exhaust or stench from a sewage treatment plant are present at certain times.
  - c. Unpleasant odors are distinct and continuously present.

Wetland 1	Wetland 2	Wetland 3
<p>None ←</p>		

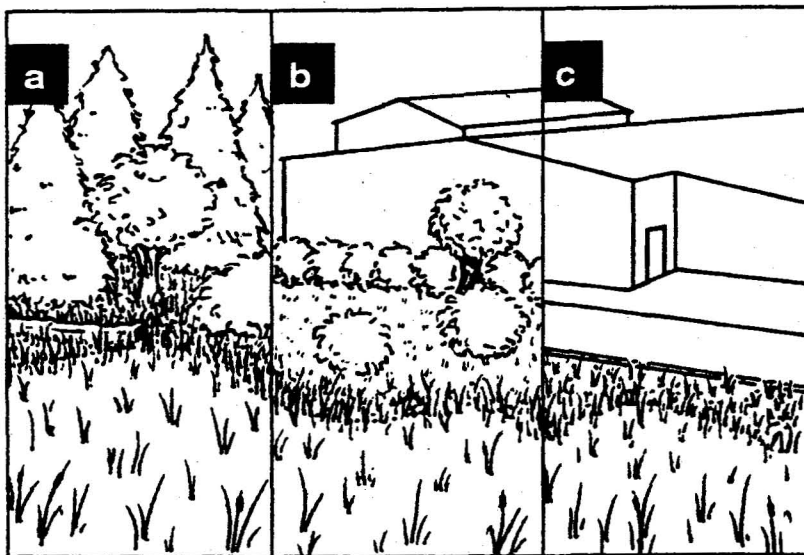


**Figure 6. Visual contrast.**  
 The top part of the figure shows a wetland with significant visual contrast with the surrounding landscape. The bottom part shows a wetland with little or no visual contrast with the surrounding landscape.

- ✓56. What noises are audible at the primary viewing location(s)?
- Bird and wildlife noises and other naturally occurring sounds.
  - Some traffic and other similar background sounds are audible in addition to naturally occurring sounds.
  - Continuous traffic or other intrusive noise is audible in addition to naturally occurring sounds.
  - Continuous traffic or other intrusive noise is audible, but no naturally occurring sounds are.
- ✓57. How much of the wetland is visible from the viewing area(s)? Describe the view.
- Greater than 50%.
  - Between 25% and 50%.
  - Less than 25%.
- ✓58. How many Cowardin classes are visible from the primary viewing area(s)? (See question 21 for list of Cowardin classes to use.)
- More than two.
  - Two
  - One

Wetland 1      Wetland 2      Wetland 3

d.		
a.		
c.		



**Figure 7. Visual character of urban wetlands.**  
 Beginning with the left part, this figure shows an urban wetland with naturally landscaped areas, areas landscaped by people and with unlandscaped developed areas.

# Appendix B Wetland Characterization

Notes

The field notes for the 'Wetland Characterization' appendix for the Tualatin Drainage taken on May 8, 2003 identify three (3) sites TD-1, TD-2 and TD-3. After the field notes were taken it was determined by DSL and City Staff the Site TD-3, the Emmaus Christian School property did not constitute a resource site for review or consideration.

Sites TD-1 and TD-2 were reviewed and analyzed for wetland characteristics, functions and protection.

The site name TD-3 was then assigned to Site RRD-1

Field Work 5/8/03

Post Field Work

RRD-1

TD-3

Watershed identification Tualatin River

### Wetland Characterization (Page 1 of 19)

#### Watershed setting

All questions pertaining to the watershed can be answered in the office from aerial photographs, U.S. Geological Service topographical maps, and other reference materials. (See Appendix A.)

#### Drainage basin

The Oregon Water Resources Department has divided the state into 18 drainage basins. Check the map in Appendix H to see which drainage basin contains the study site.

1. What is the name of the drainage basin that contains your assessment area?

#### Physical characteristics of the watershed being assessed (within the drainage basin)

##### Topography

2. What is the watershed's area in square miles? The watershed area is often much smaller than the drainage basin (see Appendix E).
3. Calculate the average slope of the watershed (see Appendix F).

##### Hydrologic profile

4. Is the stream flow in the watershed modified by dams, channelization or levees? (Choose all that are appropriate.)
  - a. Tributary streams to the main stem stream are modified.
  - b. Main stem stream is modified.
  - c. Stream flow is not modified (free-flowing.)
5. Is water being taken out of the stream(s) through active diking, drainage or irrigation districts in the watershed upstream of the assessment area?
  - a. Yes.
  - b. No.

##### Land uses within the watershed

6. What is the dominant land use in the watershed upstream from the assessment area?
  - a. Urban.
  - b. Urbanizing (mix of urban, agriculture and forest uses).
  - c. Agriculture (farming, ranching or grazing).
  - d. Forested or natural area.

#### Watershed Notes

Lower Willamette & Sandy  
Drainage Basin

712 square miles  
(1% stream gradient)

Main stem stream is modified

Watershed identification Tualatin River**Wetland Characterization (Page 2 of 19)**

**Water quality** (Use more specific water quality information, if available. Contact local DEQ office, or call the DEQ lab at (503) 229-5983 for sampling information.)

7. Consult the most recent State of Oregon Department of Environmental Quality 305(b) Report to determine whether any streams in the study area are listed as a *water quality limited*. (You may want to ask DEQ whether there are any proposed changes.) This information is included in Clean Water Act section 303(d) reporting.
  - a. Streams or portions of streams within the study area are listed as *water quality limited*.
  - b. No streams or portions of streams within the study area are listed as *water quality limited*.
8. Consult the most recent *Oregon Statewide Assessment of Nonpoint Sources of Water Pollution* to determine the water quality condition of stream reaches in the watershed upstream from the assessment area. (If both "b" and "c" apply, choose "c.")
  - a. All upstream reaches are listed as *no problem* (or no data available).
  - b. One or more upstream reaches are listed in *moderate* water quality condition.
  - c. One or more upstream reaches are listed in *severe* water quality condition.

**Biological characteristics of the watershed**

9. Fisheries: Select all that are appropriate and list type if known. (Contact local Oregon Department of Fish and Wildlife office for this information.)

- Type*
- a. Cold water.
  - b. Warm water.
  - c. Anadromous.
  - d. Wild population.
  - e. Introduced or hatchery populations.
  - f. None.
  - g. Other (list).

• See letter  
From ODFW

**Watershed Notes**

Down river from  
the Dairy Creek confluence  
to the mouth of the  
Tualatin is water  
quality limited.

Watershed identification Tualatin River

**Wetland Characterization (Page 3 of 19)**

*Watershed Notes*

10. Are known sensitive, threatened or endangered fish species present in the watershed? If so, list which species.

- |             |                   |
|-------------|-------------------|
|             | <i>Species</i>    |
| a. Yes.     | • Steelhead       |
| b. No.      | • Cutthroat trout |
| c. Unknown. | • Coho Salmon     |

11. Wildlife species: Select all that are appropriate and list species if known. (Contact local Oregon Department of Fish and Wildlife office for this information.)

- |                     |                |
|---------------------|----------------|
|                     | <i>Species</i> |
| a. Migratory birds. | • See ODFW     |
| b. Big game.        | Letter         |
| c. Nesting birds.   |                |

12. Are known sensitive, threatened or endangered plant species or wildlife species other than fish present in the watershed? If so, list which species. (Contact local ODFW office or Natural Heritage Council for this information.)

- |             |                |
|-------------|----------------|
|             | <i>Species</i> |
| a. Yes.     | • See ODFW     |
| b. No.      | Letter         |
| c. Unknown. |                |

13. Does the watershed provide a natural corridor for fish or wildlife movement? (Observe from aerial photographs.) **List whether for fish, wildlife or both.** Consider fences, dams and other barriers to travel. Aerial photographs of the watershed area are the best source of information. Fragmented systems have barriers to movement or a section where the natural area is broken by developed area.

A corridor is a landscape feature that enables fish or wildlife species to travel between broad geographical areas. (See Figure 1.)

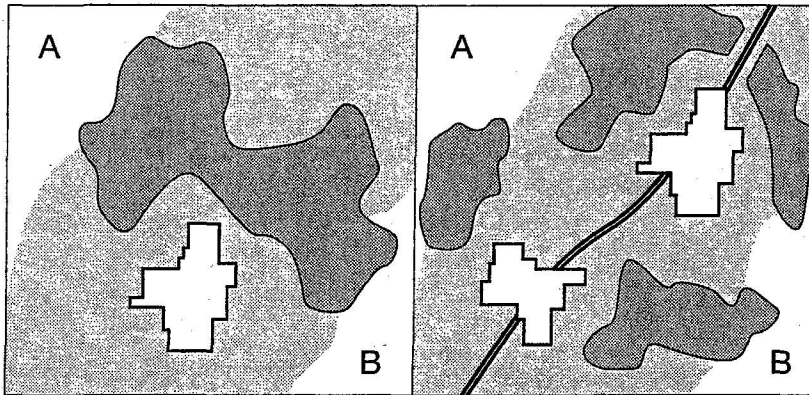
- a. There are contiguous natural areas that allow species movement, and if barriers exist, they do not stop animal or fish movement.
- b. The natural areas are fragmented, but species movement is still possible.
- c. The habitat system is fragmented, and there are barriers to species movement.

a.

Watershed identification Tualatin River

## Wetland Characterization (Page 4 of 19)

Watershed Notes



**Figure 1. Watersheds as corridors for wildlife movement.**

Areas A and B are the end points of a movement corridor through the watershed. Natural areas are shaded darkly, the irregular polygons represent highly developed areas, and the thick black line represents an impassable barrier such as an interstate highway. In the first part of the illustration, the contiguous natural area connects both ends of the corridor. The developed area is a barrier, but it does not obstruct species movement. The second half of the illustration shows fragmented natural areas with an impassable barrier. If the barrier stopped at the smaller developed area and did not continue off the lower left, species movement would still be possible.

14. What are the landscape features at both ends of the movement corridor? (These may lie outside the assessment area.) From an aerial photo, observation or local knowledge, determine whether there are large natural areas at either end of the movement corridor. The natural area does not have to be a wetland.
- Large natural habitat areas are at both ends.
  - One end has a natural habitat area and the other end is developed.
  - Both ends are developed.

The Tualatin River Drainage that bounds the south side of Cornelius lies between Fernhill Wetlands (upstream) to the southwest and Jackson Bottom wetlands (downstream) to the east. Both of these wetlands are large habitat areas.

Watershed identification Tualatin River

(Tualatin Drainage Unit)

**Wetland Characterization (Page 5 of 19)**

**Individual wetland sites**

Fill out this part of the characterization for each wetland in the assessment area. Some of the information can be gathered in the office; some must be gathered at the site. You may want to do a rough sketch of the site (doesn't have to be to scale) to refer to back in the office.

**Wetland structure and relation to surrounding landscape**

✓15. What percentage of the area within 500 feet of the wetland's edge is dedicated to the land uses listed below? (From overlay 2 or in the field.)

It is best to determine the land uses from a recent aerial photo. If an aerial photo is not available, measure 500 feet in the field to get an idea of distance to evaluate. Use the following ranges for your answers for each land-use category:

- a. Less than 20%.
- b. Between 20% and 50%.
- c. Greater than 50%.

- 1. Open Space (includes natural areas, parks and developed recreation areas, but not land designated for Exclusive Forest Use).
- 2. Agriculture (pasture, cropped lands, orchards, range land).
- 3. Exclusive Forest Use lands.
- 4. Developed uses (residential, commercial or industrial—rural and urban).
- 5. Other (list).

✓16. What is the dominant existing land use within 500 feet of the wetland on the **downstream or down-slope edge** of the wetland? Use the same land-use categories as question 15.

17. What is the wetland's area in acres? (Measure the entire area of contiguous wetland, not just the portion within the assessment area. Use the dimensions of the wetland as outlined on the base map.)

- a. Greater than 5 acres.
- b. Between 0.5 acres and 5 acres.
- c. Less than 0.5 acres.

Wetland 1      Wetland 2      Wetland 3

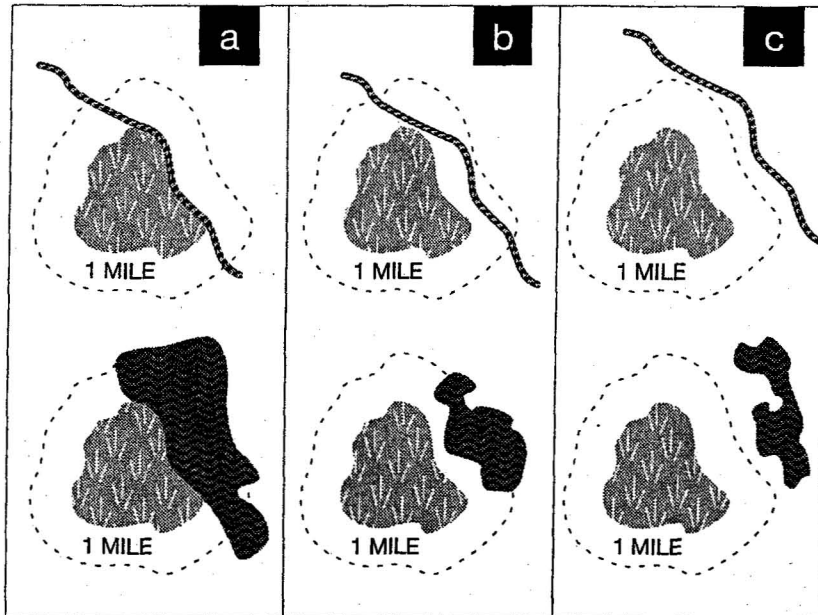
	Wetland 1	Wetland 2	Wetland 3
15. Percentage of area within 500 feet of wetland's edge dedicated to land uses:			
1. Open Space	b.		
2. Agriculture		b.	c.
3. Exclusive Forest Use lands			
4. Developed uses	c.	c.	b.
5. Other			
16. Dominant existing land use within 500 feet of wetland on downstream or down-slope edge:	Residential	Agriculture	Agriculture
17. Wetland's area in acres:	b. (3.32 Acres)	a. (5.95 Acres)	

✓ Questions preceded by a check mark can be completed in the field.

Watershed identification Tualatin River

(Tualatin Drainage Unit)

Wetland Characterization (Page 6 of 19)



**Figure 2. Connectivity to streams, lakes and ponds.**  
 The lightly shaded area represents a wetland, the darkly shaded area represents a lake or pond and the dark line represents a stream. Part "a" shows the wetland connected to a stream, lake or pond, part "b" shows a stream, lake or pond within 1 mile but no surface connection, and part "c" shows no stream, lake or pond within 1 mile and no surface connection.

18. How is the wetland connected to another body of water, such as a stream, lake or pond? (See Figure 2.)
- a. The wetland is connected by surface water to another body of water. This may be by a culvert, irrigation ditch, intermittent stream or perennial stream.
  - b. No surface-water connection exists to another body of water, but other bodies of water lie within 1 mile of the wetland.
  - c. No surface-water connection exists to another body of water, and no other bodies of water lie within 1 mile of the wetland.
19. Is all or part of the wetland located within the 100-year floodplain (use floodplain maps to determine) or within an enclosed basin? An enclosed basin has no inlet or outlet.
- a. Yes.
  - b. No.

Wetland 1	Wetland 2	Wetland 3
TD-1	TD-2	TD-3
a.	a.	a.
<u>YES</u>	<u>YES</u>	

Watershed identification Tualatin River

(Tualatin Drainage Unit)

**Wetland Characterization (Page 7 of 19)**

Wetland 1      Wetland 2      Wetland 3

20. What percentage of the area within 500 feet of the wetland's edge is **zoned** for each of the land uses listed below?

Use the following ranges for your answers:

- a. Less than 20%
- b. Between 20% and 50%
- c. Greater than 50%

- 1. Open Space (includes natural areas, parks and developed recreation areas, but not lands zoned for Exclusive Forest Use).
- 2. Agriculture (pasture, cropped lands, orchards, range land).
- 3. Exclusive Forest Use lands.
- 4. Developed uses (residential, commercial, industrial).
- 5. Other (list).

	Wetland 1	Wetland 2	Wetland 3
20. What percentage of the area within 500 feet of the wetland's edge is <b>zoned</b> for each of the land uses listed below?			
Use the following ranges for your answers:			
a. Less than 20%			
b. Between 20% and 50%			
c. Greater than 50%			
1. Open Space (includes natural areas, parks and developed recreation areas, but not lands zoned for Exclusive Forest Use).			
2. Agriculture (pasture, cropped lands, orchards, range land).			
3. Exclusive Forest Use lands.			
4. Developed uses (residential, commercial, industrial).			
5. Other (list).			
21. What percentage of the wetland's area is covered by the following Cowardin wetland classes? (Cowardin wetland classes refer to a classification of wetland type by vegetation cover. See Appendix D.) Only list those that compose 10% or more of the overall wetland.			
The percentages can be estimated in the field or from aerial photographs. Use the following categories for your answers:			
a. Between 70% and 100%.			
b. 50% or more, but less than 70%.			
c. 20% or more, but less than 50%.			
d. 10% or more, but less than 20%.			
1. Open water (deep water habitat, greater than or equal to 6.6 feet or 2 meters).			
2. Emergent (includes floating aquatics—herbaceous plants that can tolerate flooding and living in wet soils).			
3. Scrub-shrub (woody vegetation under 20 feet tall).			
4. Forested (woody vegetation 20 feet or taller).			
22. For urban areas, how many wetland plant species are present? (You need not list the species name.)			
a. More than 5 plant species.			
b. Between 2 and 5 plant species.			
c. 1 plant species (monotypic).			



Watershed identification Tualatin River

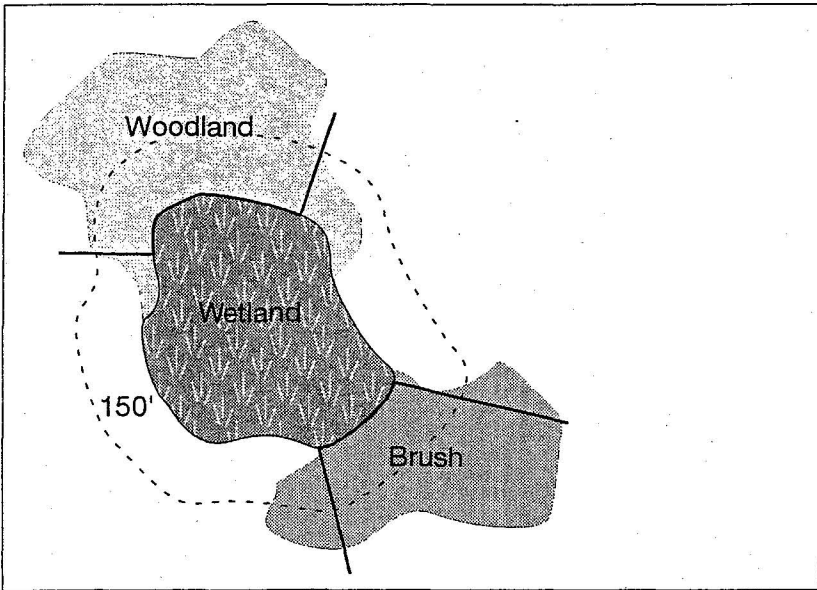
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**Wetland Characterization (Page 9 of 19)**

- ✓25. For **rural areas**: What percentage of the wetland's edge is bordered by upland wildlife habitat that is at least 150 feet wide? Brush, woodland, non-farmed agricultural land and range land are considered upland habitat for this question. Actively farmed lands are not considered wildlife habitat. (See Figure 4.)
  - a. Greater than 40%.
  - b. Between 10% and 40%.
  - c. Less than 10%.
- ✓26. For **urban areas**: What percentage of the wetland's edge is bordered by a vegetative buffer at least 25 feet wide? A vegetative buffer consists of trees, bushes or vegetation that is not regularly mowed or farmed. (See Figure 5.)
  - a. Greater than 40%.
  - b. Between 10% and 40%.
  - c. Less than 10%.

Wetland 1      Wetland 2      Wetland 3

<del>CA</del>	C	C
C	C	C



**Figure 4. Percent of wetland edge bordered by upland habitat (for Question 25).**  
 The dashed line delineates the area within 150 feet of the wetland; the "woodland" and "brush" areas are upland habitat; and the lines perpendicular to the wetland edge indicate where the upland habitat adjacent to the wetland habitat is at least 150 feet wide. The dark lines (portions of the wetland bordered by upland habitat at least 150 feet wide) make up roughly one-third (between 10% and 40%) of the wetland perimeter.

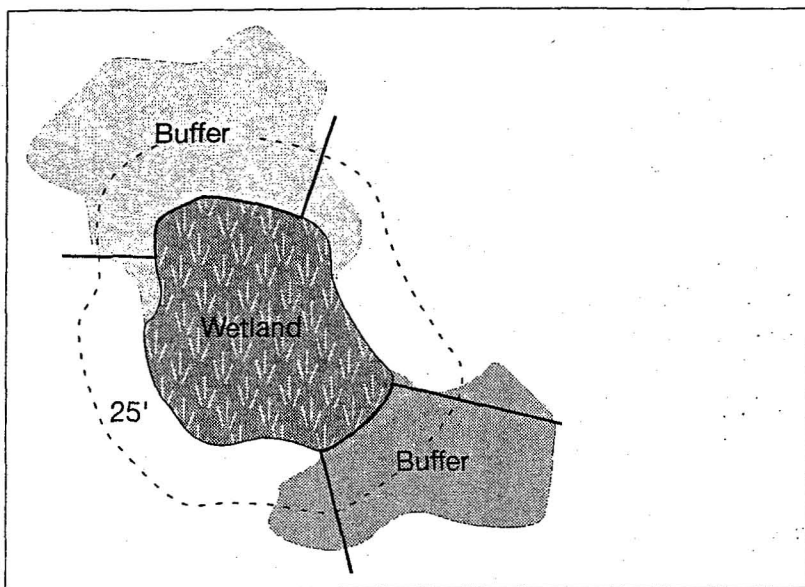
Watershed identification Tualatin River

(TDU)

**Wetland Characterization (Page 10 of 19)**

27. How is the wetland connected to other wetlands? (Look at an aerial photo or map to determine this.)
- a. Connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, culvert, canal or lake.
  - b. Not connected by surface waters, but other unconnected wetlands lie within a 3-mile radius.
  - c. Not connected to other wetlands by surface waters, and no other unconnected wetlands lie within a 3-mile radius.
28. Estimate the area of unvegetated, open water within the wetland.
- a. More than 3 acres.
  - b. Greater than 1 acre, up to 3 acres.
  - c. Between 0.5 acre and 1 acre.
  - d. Less than 0.5 acre.

	Wetland 1	Wetland 2	Wetland 3
	TD-1	TD-2	TD-3
27.	a.	a.	a.
28.	d.	d.	d.



**Figure 5. Percent of wetland edge bordered by vegetative buffer (for Question 26).**

The dashed line delineates the area within 25 feet of the wetland; the vegetative buffer areas are labeled "buffer"; and the lines perpendicular to the wetland edge indicate where the vegetative buffer adjacent to the wetland habitat is at least 25 feet wide. The dark lines (portions of the wetland bordered by a vegetative buffer at least 25 feet wide) make up roughly one-third (between 10% and 40%) of the wetland perimeter.

Watershed identification Tualatin River

(Tualatin Drainage Unit)

**Wetland Characterization (Page 11 of 19)**

**Fisheries habitat**

29. Are fish present in a stream, lake or pond connected to the wetland.
- a. Salmon, trout or sensitive species are present at some time during the year.
  - b. Species not covered in "a" are present at some time during the year.
  - c. No species are present at any time during the year.

**Streams connected to the wetland**  
Complete this section only if the wetland being assessed has an unimpeded surface water connection to a stream.

- ✓30. What is the physical character of the stream channel? To observe stream channel modifications, look for built rock banks, cement sides, straightened areas or other human-created features.
- a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel.
  - b. Only portions of the stream are modified.
  - c. The stream is extensively modified or confined in a non-vegetated channel or pipe.

- ✓31. What percentage of the stream is shaded by streamside (riparian) vegetation?
- a. Greater than 75%.
  - b. Between 50 and 75%.
  - c. 25% or more, but less than 50%.
  - d. Less than 25%.

- ✓32. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders?
- a. Greater than 25%.
  - b. Between 10% and 25%.
  - c. Less than 10%.

**Lakes or ponds** (entire lake or pond and wetland complex)  
Complete this section only if the wetland being assessed has a surface water connection to a lake or pond.

33. Does the lake or pond contain areas of deep and shallow water? ("Deep" is defined as more than 6.5 feet deep.)
- a. Yes.
  - b. Cannot be determined.
  - c. No.

Wetland 1	Wetland 2	Wetland 3
TD-1	TD-2	TD-3
b.	b.	c
b.	b.	c.
d.	d.	d.
c.	c.	c.
	b.	

Watershed identification Tualatin River

(Tualatin Drainage Unit)

**Wetland Characterization (Page 12 of 19)**

- ✓34. What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation?
  - a. 60% or more.
  - b. 20% or more, but less than 60%.
  - c. Less than 20%.
- ✓35. What percentage of the wetland complex contains cover objects such as submerged logs, floating or submerged vegetation, large rocks or boulders?
  - a. Greater than 25%
  - b. Between 10 and 25%
  - c. Less than 10%

**Wetland hydrology**

- 36. What is the wetland's **primary** source of water? (Determine in the field or in the office. This may be difficult to determine. If a surface water connection exists—stream, lake, ditch—use it as the primary source. If no surface water connection is present, talk to local natural resource people for hints.)
  - a. Surface flow, including streams and ditches.
  - b. Precipitation or sheet flow.
  - c. Groundwater, including springs or seeps.
- ✓37. Is there evidence of flooding or ponding during a portion of the growing season? Look for evidence of water fluctuation such as sediment stains on trees, drift lines, surface scour or sediment deposits. Also look at the location of the wetland. Is it in a distinct topographic depression or adjacent to a stream that is known to flood or fluctuate because of storm pulses?
  - a. Yes (describe).
  - b. Unable to determine or not applicable.
  - c. No.
- ✓38. Is water flow out of the wetland restricted (e.g., beaver dam, concrete structure, undersized culvert)?
  - a. Yes, the outlet is restricted or the wetland has no outlet.
  - b. Minor restrictions slow down the water (e.g., undersized culvert).
  - c. No, the outlet has unrestricted flow.

	Wetland 1	Wetland 2	Wetland 3
	TD-1	TD-2	TD-3
✓34.	C.	C.	C.
✓35.	C.	C.	C.
36.	a.	a.	a.
✓37.	Yes. Vegetation matted in direction of drainage flow.	Yes. Ponding evident.	
✓38.	a.	C.	

Watershed identification Tualatin River

(Tualatin Drainage Unit)

**Wetland Characterization (Page 13 of 19)**

- ✓39. If the primary source of water is surface flow, is the water flow into the wetland restricted?
- a. Flow is not restricted, or if blocked, the obstruction can be removed easily.
  - b. Permanent blockage to the flow exists but may be breached or a new flow channel created (engineering or earth moving solution).
  - c. Flow is restricted and cannot be restored.
40. Has the stream flow or stream bank been modified by human activities less than 1 mile above the wetland? Modifications include dams, channelizations and levees, and confinement of the stream in a pipe.
- a. Yes.
  - b. No.

Wetland 1      Wetland 2      Wetland 3

	Wetland 1	Wetland 2	Wetland 3
39. If the primary source of water is surface flow, is the water flow into the wetland restricted? a. Flow is not restricted, or if blocked, the obstruction can be removed easily. b. Permanent blockage to the flow exists but may be breached or a new flow channel created (engineering or earth moving solution). c. Flow is restricted and cannot be restored.	a.	a.	c.
40. Has the stream flow or stream bank been modified by human activities less than 1 mile above the wetland? Modifications include dams, channelizations and levees, and confinement of the stream in a pipe. a. Yes. b. No.	Yes.	Yes.	Yes
<b>Public access to wetland site</b> (select an appropriate area to observe the wetland to answer these questions.)			
41. Is the wetland site open to the public for direct access or observation? a. Yes, the wetland is open to the public. b. Yes, but wetland access is allowed only by permission of the landowner or managing entity. c. No, access is not allowed.	b	b. Very limited.	c.
✓42. Are there visible hazards to the public at the wetland site? (Examples: busy road adjacent to the site, and no buffer or sidewalk exists; steep embankment; and contaminated water.) a. No. b. One or two visible safety hazards exist (describe). c. More than two visible safety hazards exist (describe).	(No) <sup>a.</sup>	a. (No)	b.
✓43. Are there other natural landscape features, such as a stream, lake, pond, forest or agricultural land contiguous or adjacent to the wetland? a. Yes. (List type and extent.) b. No.	No	Yes. (Agriculture)	Yes (Agriculture)

Watershed identification Tualatin River

(Tualatin Drainage Unit)

**Wetland Characterization (Page 14 of 19)**

- ✓44. Is there existing physical public access to features listed in Question 43? If not, can such access be created easily, or can other habitats be observed from the site? For a stream, pond or lake, access may require dry ground to the water's edge. Stream access could also be at a road crossing, but consider the safety at such locations
- a. Public access to other habitats exists or can be created easily.
  - b. Public access doesn't exist and can't be created easily, but observation of other features can be made from the site.
  - c. Public access doesn't exist and can't be created easily. In addition, observation of other features can't be made from the site.
- ✓45. Does it appear that access to a viewing spot or wetland edge is available for individuals with limited mobility? (To see whether the site meets ADA requirements, a more thorough examination should be done.)
- a. Yes.
  - b. No. (List physical barriers.)
- ✓46. Is there a public access point within 250 feet of the wetland's edge? Access points include parking lots, transit stops, bike lanes, trails and water courses. Maintained means that the area is designated as a car or transit area by the managing entity. Unmaintained would be a road pull-off or other area that people use but is not designated for such use. Describe the type of access.
- a. Yes, a maintained access point exists (describe).
  - b. Yes, an unmaintained access point exists (describe).
  - c. No access point exists, or the access point is hazardous.

	Wetland 1	Wetland 2	Wetland 3
	TD-1	TD-2	TD-3
✓44. Is there existing physical public access to features listed in Question 43? If not, can such access be created easily, or can other habitats be observed from the site? For a stream, pond or lake, access may require dry ground to the water's edge. Stream access could also be at a road crossing, but consider the safety at such locations	N/A	No	No
✓45. Does it appear that access to a viewing spot or wetland edge is available for individuals with limited mobility? (To see whether the site meets ADA requirements, a more thorough examination should be done.)	YES	No	No (public park <del>edge</del> across public street from site)
✓46. Is there a public access point within 250 feet of the wetland's edge? Access points include parking lots, transit stops, bike lanes, trails and water courses. Maintained means that the area is designated as a car or transit area by the managing entity. Unmaintained would be a road pull-off or other area that people use but is not designated for such use. Describe the type of access.	a.	c. There is a dead-end street which is barricaded.	c.
✓47. Is the wetland accessible by boat?			
a. Boat launching areas or access points exist on site or within 1/2 mile on a connected lake, river, bay or other body of water.			
b. Potential to develop boat launching areas or access points exists, or such features are more than 1/2 mile but less than 1 mile from the wetland.			
c. No boat launching areas or access points exist within 1 mile of the wetland, and potential to develop launching areas or access points is limited.	c.	c.	c.

**Recreation**

- ✓47. Is the wetland accessible by boat?
- a. Boat launching areas or access points exist on site or within 1/2 mile on a connected lake, river, bay or other body of water.
  - b. Potential to develop boat launching areas or access points exists, or such features are more than 1/2 mile but less than 1 mile from the wetland.
  - c. No boat launching areas or access points exist within 1 mile of the wetland, and potential to develop launching areas or access points is limited.

Watershed identification Tualatin River

(Tualatin Drainage Unit)

**Wetland Characterization (Page 17 of 19)**

- ✓48. Are there trails, viewing areas or other structures that guide user movement to a particular area or areas in or around the wetland?
  - a. Yes, developed or maintained trails or viewing areas exist.
  - b. Yes, undeveloped trails or viewing areas exist that do not disrupt wildlife or plant habitat.
  - c. No trails or viewing areas exist, or those that do disrupt wildlife or plant habitat.
  
- 49. Is fishing allowed at the wetland or connected water body? (Contact local Oregon Department of Fish and Wildlife office.) Answer "not applicable" if question 18 was answered "b" or "c," unless question 21 indicates that 10% or more of the wetland's area is covered by open water.
  - a. Yes (either all or part of the year).
  - b. No.
  - c. Not applicable.
  
- 50. Is hunting allowed at the wetland? (If the wetland is within the city limits, hunting is not allowed. Otherwise, contact the local Oregon Department of Fish and Wildlife office for this information.)
  - a. Yes (either all or part of the year).
  - b. No.

**Aesthetics**

- ✓51. For **rural areas**, what is the extent of visual contrast with the surrounding landscape? (See Figure 6.)
  - a. Significant contrast with surrounding landscape.
  - b. Limited contrast with surrounding landscape.
  - c. Little or no contrast with surrounding landscape.
  
- ✓52. For **urban areas**, what is the visual character of the surrounding area? (See Figure 7.)
  - a. Open space or naturally landscaped areas.
  - b. Areas landscaped or manipulated by people.
  - c. Developed with no landscaping.
  
- ✓53. Are there visual detractors at the wetland site such as abandoned cars, litter, shopping carts or other objects that distract the viewer from the wetland?
  - a. Yes.
  - b. No.

	Wetland 1	Wetland 2	Wetland 3
48.	a.	C.	C.
49.			
50.	No	No	?
51.	N/A	C.	C
52.	C.	C.	b.
53.	YES	No	No

Watershed identification Tualatin River

(Tualatin Drainage Units)

**Wetland Characterization (Page 18 of 19)**

- ✓54. If the wetland contains visual detractors, as indicated in question 53, can they be removed easily?
- a. Yes.
  - b. No.

Locate the primary viewing area(s) for the following four questions (be sure to indicate the location on the overlay).

- ✓55. What odors are present at the primary viewing location(s)?
- a. Natural, pleasant odors only.
  - b. Unpleasant odors such as automobile exhaust or stench from a sewage treatment plant are present at certain times.
  - c. Unpleasant odors are distinct and continuously present.



**Figure 6. Visual contrast.**  
 The top part of the figure shows a wetland with significant visual contrast with the surrounding landscape. The bottom part shows a wetland with little or no visual contrast with the surrounding landscape.

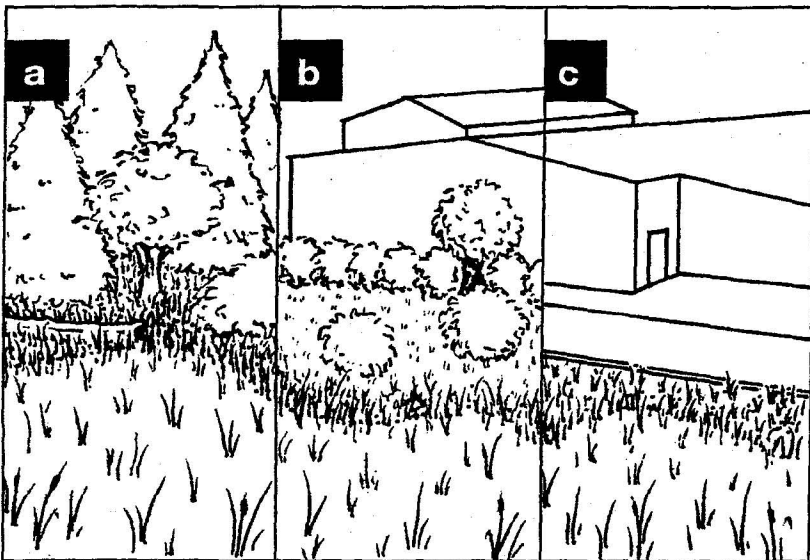
Wetland 1	Wetland 2	Wetland 3
TD-1	TD-2	TD-3
Yes.	N/A	N/A
No odors (2/1/02)	No odors (2/1/02)	No odors (2/4/02)

Watershed identification \_\_\_\_\_

**Wetland Characterization (Page 19 of 19)**

- ✓56. What noises are audible at the primary viewing location(s)?
  - a. Bird and wildlife noises and other naturally occurring sounds.
  - b. Some traffic and other similar background sounds are audible in addition to naturally occurring sounds.
  - c. Continuous traffic or other intrusive noise is audible in addition to naturally occurring sounds.
  - d. Continuous traffic or other intrusive noise is audible, but no naturally occurring sounds are.
- ✓57. How much of the wetland is visible from the viewing area(s)? Describe the view.
  - a. Greater than 50%.
  - b. Between 25% and 50%.
  - c. Less than 25%.
- ✓58. How many Cowardin classes are visible from the primary viewing area(s)? (See question 21 for list of Cowardin classes to use.)
  - a. More than two.
  - b. Two
  - c. One

Wetland 1	Wetland 2	Wetland 3
TD-1	TD-2	TD-3
b.	a/b.	b.
a. (public park)	a. (dead-end public street)	c. (Public park across street)



**Figure 7. Visual character of urban wetlands.**  
Beginning with the left part, this figure shows an urban wetland with naturally landscaped areas, areas landscaped by people and with unlandscaped developed areas.

# Appendix B Wetland Characterization

Notes

During the original field work conducted on May 8, 2002 City staff identified the three (3) sites along Jobes Ditch as individual and separate wetlands. Therefore, the 'Characterization' notes indicate three (3) sites JD-1, JD-2 and JD-3. Upon review by DSL it was determined that technically there are only two wetlands, JD-1 and JD-2 are actually a single site. Sites JD-1 and JD-2 were changed to JD-1 AND JD-3 became JD-2 during the processing of information, inventorying and analysis.

Field Work - 5/8/02

Post Field Work - 5/8/02

JD-1

JD-1

JD-2

JD-1

JD-3

JD-2

Watershed identification   Council Creek  

**Wetland Characterization (Page 1 of 19)**

Watershed Notes

**Watershed setting**

All questions pertaining to the watershed can be answered in the office from aerial photographs, U.S. Geological Service topographical maps, and other reference materials. (See Appendix A.)

**Drainage basin**

The Oregon Water Resources Department has divided the state into 18 drainage basins. Check the map in Appendix H to see which drainage basin contains the study site.

1. What is the name of the drainage basin that contains your assessment area?

Lower Willamette &  
Sandy Drainage Basin

**Physical characteristics of the watershed being assessed (within the drainage basin)**

**Topography**

2. What is the watershed's area in square miles? The watershed area is often much smaller than the drainage basin (see Appendix E).
3. Calculate the average slope of the watershed (see Appendix F).

**Hydrologic profile**

4. Is the stream flow in the watershed modified by dams, channelization or levees? (Choose all that are appropriate.)
  - a. Tributary streams to the main stem stream are modified.
  - b. Main stem stream is modified.
  - c. Stream flow is not modified (free-flowing.)

5. Is water being taken out of the stream(s) through active diking, drainage or irrigation districts in the watershed upstream of the assessment area?

Yes

- a. Yes.
- b. No.

**Land uses within the watershed**

6. What is the dominant land use in the watershed upstream from the assessment area?

- a. Urban.
- b. Urbanizing (mix of urban, agriculture and forest uses).
- c. Agriculture (farming, ranching or grazing).
- d. Forested or natural area.

Urbanizing

Watershed identification \_\_\_\_\_

**Wetland Characterization (Page 2 of 19)****Watershed Notes**

**Water quality** (Use more specific water quality information, if available. Contact local DEQ office, or call the DEQ lab at (503) 229-5983 for sampling information.)

7. Consult the most recent State of Oregon Department of Environmental Quality 305(b) Report to determine whether any streams in the study area are listed as a *water quality limited*. (You may want to ask DEQ whether there are any proposed changes.) This information is included in Clean Water Act section 303(d) reporting.
- a. Streams or portions of streams within the study area are listed as *water quality limited*.
- b. No streams or portions of streams within the study area are listed as *water quality limited*.

Council Creek From  
mouth to headwaters  
is identified as  
'water quality limited'.

8. Consult the most recent *Oregon Statewide Assessment of Nonpoint Sources of Water Pollution* to determine the water quality condition of stream reaches in the watershed upstream from the assessment area. (If both "b" and "c" apply, choose "c.")
- a. All upstream reaches are listed as *no problem* (or no data available).
- b. One or more upstream reaches are listed in *moderate* water quality condition.
- c. One or more upstream reaches are listed in *severe* water quality condition.

**Biological characteristics of the watershed**

9. Fisheries: Select all that are appropriate and list type if known. (Contact local Oregon Department of Fish and Wildlife office for this information.)

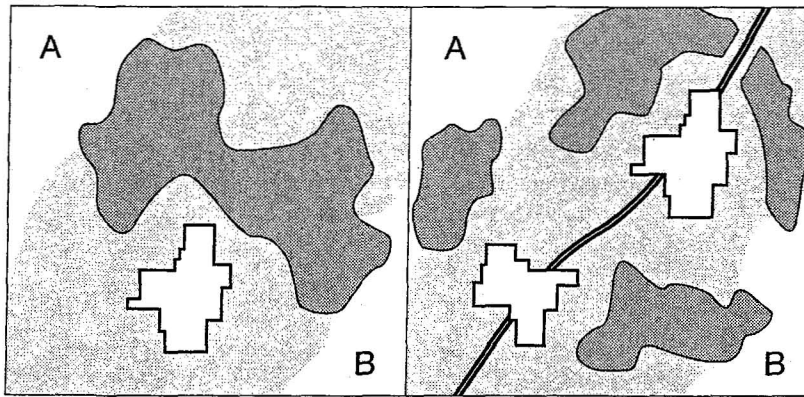
**Type**

- a. Cold water.
- b. Warm water.
- c. Anadromous.
- d. Wild population.
- e. Introduced or hatchery populations.
- f. None.
- g. Other (list).

• See Attached  
ODFW Letter

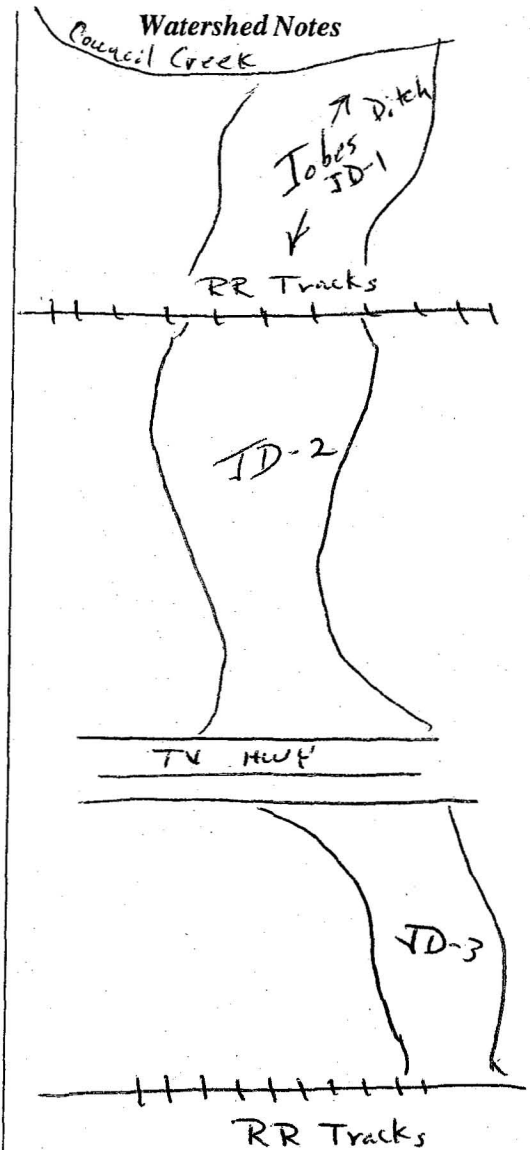


Watershed identification \_\_\_\_\_

**Wetland Characterization (Page 4 of 19)****Figure 1. Watersheds as corridors for wildlife movement.**

Areas A and B are the end points of a movement corridor through the watershed. Natural areas are shaded darkly, the irregular polygons represent highly developed areas, and the thick black line represents an impassable barrier such as an interstate highway. In the first part of the illustration, the contiguous natural area connects both ends of the corridor. The developed area is a barrier, but it does not obstruct species movement. The second half of the illustration shows fragmented natural areas with an impassable barrier. If the barrier stopped at the smaller developed area and did not continue off the lower left, species movement would still be possible.

14. What are the landscape features at both ends of the movement corridor? (These may lie outside the assessment area.) From an aerial photo, observation or local knowledge, determine whether there are large natural areas at either end of the movement corridor. The natural area does not have to be a wetland.
- Large natural habitat areas are at both ends.
  - One end has a natural habitat area and the other end is developed.
  - Both ends are developed.



Watershed identification \_\_\_\_\_

JD-1      JD-2      JD-3

**Wetland Characterization (Page 5 of 19)**

**Individual wetland sites**

Fill out this part of the characterization for each wetland in the assessment area. Some of the information can be gathered in the office; some must be gathered at the site. You may want to do a rough sketch of the site (doesn't have to be to scale) to refer to back in the office.

**Wetland structure and relation to surrounding landscape**

✓15. What percentage of the area within 500 feet of the wetland's edge is dedicated to the land uses listed below? (From overlay 2 or in the field.)

It is best to determine the land uses from a recent aerial photo. If an aerial photo is not available, measure 500 feet in the field to get an idea of distance to evaluate. Use the following ranges for your answers for each land-use category:

- a. Less than 20%.
- b. Between 20% and 50%.
- c. Greater than 50%.

1. Open Space (includes natural areas, parks and developed recreation areas, but not land designated for Exclusive Forest Use).

2. Agriculture (pasture, cropped lands, orchards, range land).

3. Exclusive Forest Use lands.

4. Developed uses (residential, commercial or industrial—rural and urban).

5. Other (list).

✓16. What is the dominant existing land use within 500 feet of the wetland on the **downstream or down-slope edge** of the wetland? Use the same land-use categories as question 15.

17. What is the wetland's area in acres? (Measure the entire area of contiguous wetland, not just the portion within the assessment area. Use the dimensions of the wetland as outlined on the base map.)

- a. Greater than 5 acres.
- b. Between 0.5 acres and 5 acres.
- c. Less than 0.5 acres.

	Wetland 1	Wetland 2	Wetland 3
1. Open Space (includes natural areas, parks and developed recreation areas, but not land designated for Exclusive Forest Use).		a.	
2. Agriculture (pasture, cropped lands, orchards, range land).	< 50% (b)	a.	b.
3. Exclusive Forest Use lands.			
4. Developed uses (residential, commercial or industrial—rural and urban).	> 50% (c)	c.	c.
5. Other (list).			
✓16. What is the dominant existing land use within 500 feet of the wetland on the <b>downstream or down-slope edge</b> of the wetland? Use the same land-use categories as question 15.	Agriculture	Developed uses (RR)	Developed uses (RR)
17. What is the wetland's area in acres? (Measure the entire area of contiguous wetland, not just the portion within the assessment area. Use the dimensions of the wetland as outlined on the base map.)			
a. Greater than 5 acres.			
b. Between 0.5 acres and 5 acres.	a.	a.	b.
c. Less than 0.5 acres.			

✓ Questions preceded by a check mark can be completed in the field.

Watershed identification \_\_\_\_\_

JD-1

JD-2

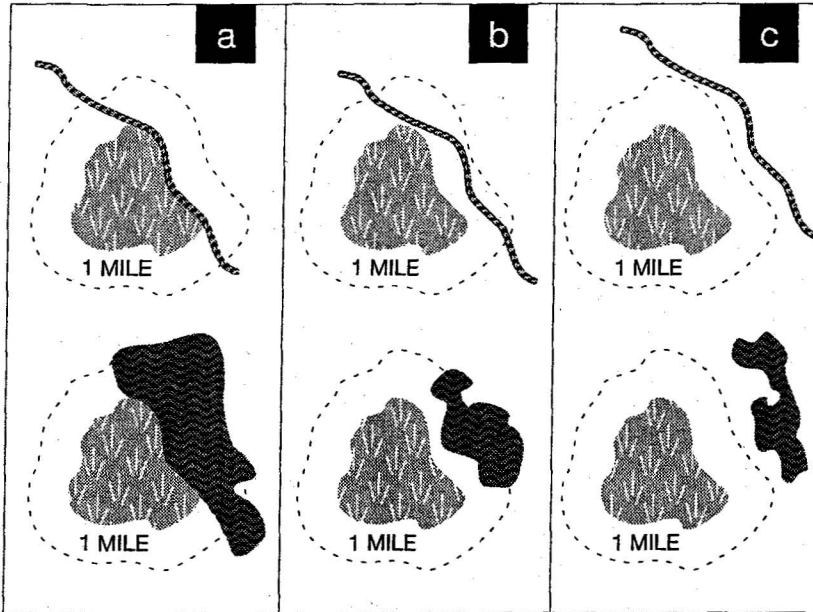
JD-3

Wetland 1

Wetland 2

Wetland 3

**Wetland Characterization (Page 6 of 19)**



**Figure 2. Connectivity to streams, lakes and ponds.**

The lightly shaded area represents a wetland, the darkly shaded area represents a lake or pond and the dark line represents a stream. Part "a" shows the wetland connected to a stream, lake or pond, part "b" shows a stream, lake or pond within 1 mile but no surface connection, and part "c" shows no stream, lake or pond within 1 mile and no surface connection.

18. How is the wetland connected to another body of water, such as a stream, lake or pond? (See Figure 2.)

- a. The wetland is connected by surface water to another body of water. This may be by a culvert, irrigation ditch, intermittent stream or perennial stream.
- b. No surface-water connection exists to another body of water, but other bodies of water lie within 1 mile of the wetland.
- c. No surface-water connection exists to another body of water, and no other bodies of water lie within 1 mile of the wetland.

a.

a.

a.

19. Is all or part of the wetland located within the 100-year floodplain (use floodplain maps to determine) or within an enclosed basin? An enclosed basin has no inlet or outlet.

- a. Yes.
- b. No.

a.

a.

a.

Watershed identification \_\_\_\_\_

JD-1

JD-2

JD-3

Wetland 1

Wetland 2

Wetland 3

**Wetland Characterization (Page 7 of 19)**

20. What percentage of the area within 500 feet of the wetland's edge is **zoned** for each of the land uses listed below?

Use the following ranges for your answers:

- a. Less than 20%
- b. Between 20% and 50%
- c. Greater than 50%.

1. Open Space (includes natural areas, parks and developed recreation areas, but not lands zoned for Exclusive Forest Use).

2. Agriculture (pasture, cropped lands, orchards, range land). c

3. Exclusive Forest Use lands.

4. Developed uses (residential, commercial, industrial). b.

5. Other (list).

c

a

b.

b.

c.

c.

**Wetland habitat**

✓21. What percentage of the wetland's area is covered by the following Cowardin wetland classes? (Cowardin wetland classes refer to a classification of wetland type by vegetation cover. See Appendix D.) Only list those that compose 10% or more of the overall wetland.

The percentages can be estimated in the field or from aerial photographs. Use the following categories for your answers:

- a. Between 70% and 100%.
- b. 50% or more, but less than 70%.
- c. 20% or more, but less than 50%.
- d. 10% or more, but less than 20%.

1. Open water (deep water habitat, greater than or equal to 6.6 feet or 2 meters).

2. Emergent (includes floating aquatics—herbaceous plants that can tolerate flooding and living in wet soils). a.

3. Scrub-shrub (woody vegetation under 20 feet tall).

4. Forested (woody vegetation 20 feet or taller). a.

a.

a.

b.

c.

✓22. For urban areas, how many wetland plant species are present? (You need not list the species name.)

- a. More than 5 plant species.
- b. Between 2 and 5 plant species.
- c. 1 plant species (monotypic).

JD-1

JD-2

JD-3

Watershed identification \_\_\_\_\_

Wetland 1

Wetland 2

Wetland 3

**Wetland Characterization (Page 8 of 19)**

- ✓23. What is the dominant wetland vegetation cover type?
  - a. Woody vegetation (forested and scrub-shrub).
  - b. Emergent vegetation and ponding, or open water only.
  - c. Emergent vegetation only or wet meadow.

c.

b.

c.

- ✓24. Refer to the diagrams in Figure 3 and select the one that most closely resembles the interspersions of Cowardin wetland classes and, if present, upland inclusions. (An upland inclusion is an island or an upland area surrounded on three sides by wetland.). Wetlands composed of only one wetland class or with two wetland classes and a simple pattern have low interspersions. Wetlands and upland complexes that have at least two wetland classes and a complex pattern have a moderate interspersions pattern. Wetlands with two or more wetland classes or upland inclusions with a complex pattern and lots of edge have a high interspersions pattern. If the wetland you are observing does not reflect any of the diagrams, use the above guidance to determine the complexity of the interspersions pattern and draw a sketch of the wetland.
  - a. High.
  - b. Moderate.
  - c. Low.

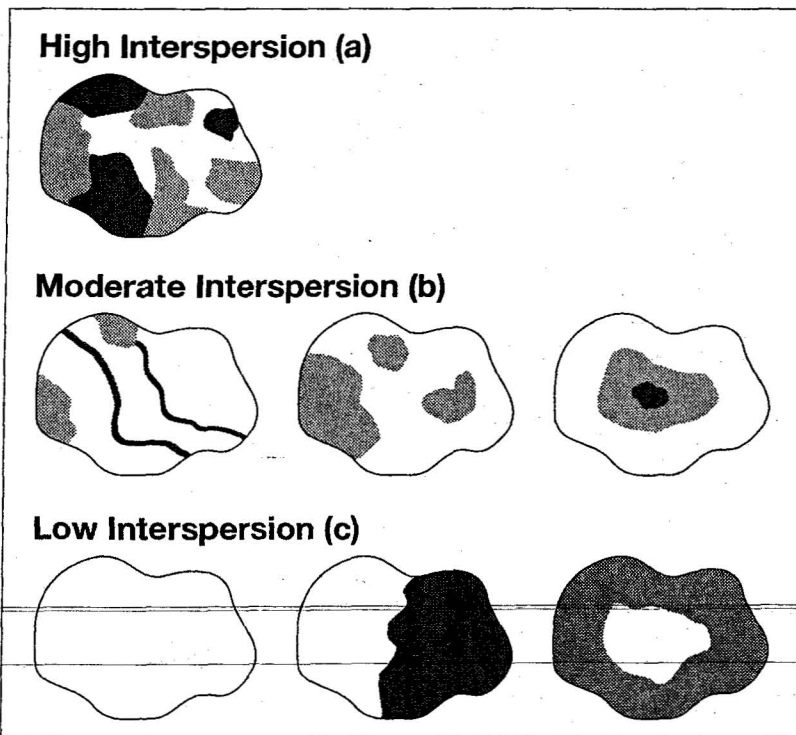


Figure 3. Interspersion of Cowardin classes and upland inclusions.

JD-1

JD-2

JD-3

Watershed identification \_\_\_\_\_

Wetland 1

Wetland 2

Wetland 3

**Wetland Characterization (Page 9 of 19)**

✓25. For **rural areas**: What percentage of the wetland's edge is bordered by upland wildlife habitat that is at least 150 feet wide? Brush, woodland, non-farmed agricultural land and range land are considered upland habitat for this question. Actively farmed lands are not considered wildlife habitat. (See Figure 4.)

- a. Greater than 40%.
- b. Between 10% and 40%.
- c. Less than 10%.

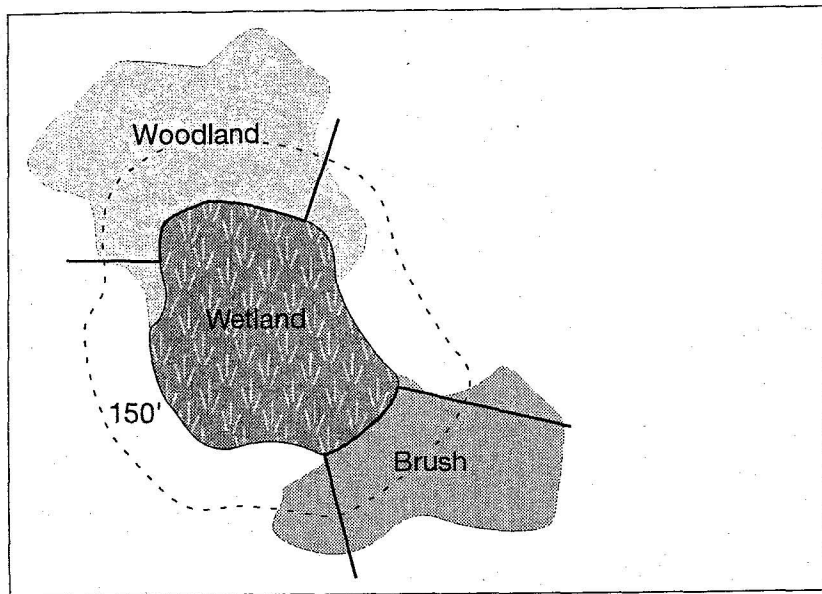
✓26. For **urban areas**: What percentage of the wetland's edge is bordered by a vegetative buffer at least 25 feet wide? A vegetative buffer consists of trees, bushes or vegetation that is not regularly mowed or farmed. (See Figure 5.)

- a. Greater than 40%.
- b. Between 10% and 40%.
- c. Less than 10%.

a.

a.

b.



**Figure 4. Percent of wetland edge bordered by upland habitat (for Question 25).**

The dashed line delineates the area within 150 feet of the wetland; the "woodland" and "brush" areas are upland habitat; and the lines perpendicular to the wetland edge indicate where the upland habitat adjacent to the wetland habitat is at least 150 feet wide. The dark lines (portions of the wetland bordered by upland habitat at least 150 feet wide) make up roughly one-third (between 10% and 40%) of the wetland perimeter.

Watershed identification \_\_\_\_\_

JD-1

JD-2

JD-3

Wetland 1

Wetland 2

Wetland 3

**Wetland Characterization (Page 10 of 19)**

27. How is the wetland connected to other wetlands? (Look at an aerial photo or map to determine this.)

a. Connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, culvert, canal or lake.

a.

a.

a.

b. Not connected by surface waters, but other unconnected wetlands lie within a 3-mile radius.

c. Not connected to other wetlands by surface waters, and no other unconnected wetlands lie within a 3-mile radius.

~~c.~~

28. Estimate the area of unvegetated, open water within the wetland.

a. More than 3 acres.

b. Greater than 1 acre, up to 3 acres.

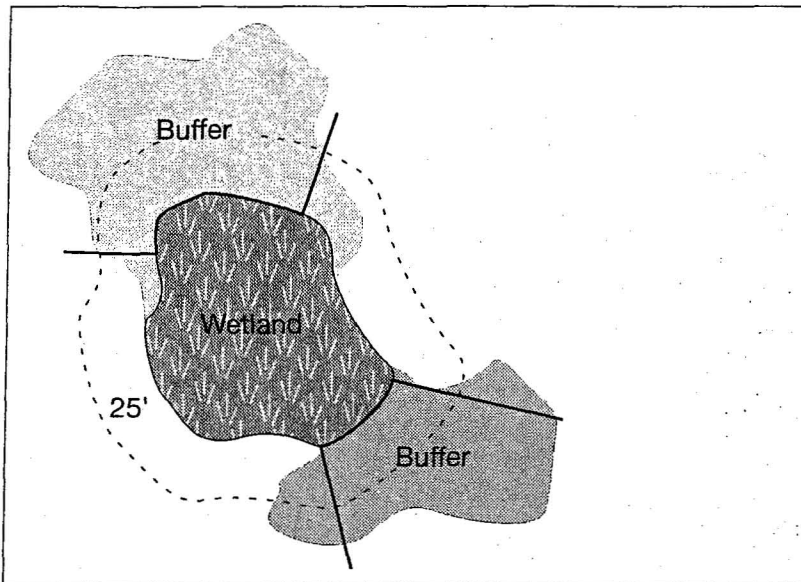
c. Between 0.5 acre and 1 acre.

d. Less than 0.5 acre.

d.

d.

d.



**Figure 5. Percent of wetland edge bordered by vegetative buffer (for Question 26).**

The dashed line delineates the area within 25 feet of the wetland; the vegetative buffer areas are labeled "buffer"; and the lines perpendicular to the wetland edge indicate where the vegetative buffer adjacent to the wetland habitat is at least 25 feet wide. The dark lines (portions of the wetland bordered by a vegetative buffer at least 25 feet wide) make up roughly one-third (between 10% and 40%) of the wetland perimeter.

Watershed identification \_\_\_\_\_

JD-1      JD-2      JD-3  
 Wetland 1      Wetland 2      Wetland 3

**Wetland Characterization (Page 11 of 19)**

**Fisheries habitat**

29. Are fish present in a stream, lake or pond connected to the wetland.
- a. Salmon, trout or sensitive species are present at some time during the year.
  - b. Species not covered in "a" are present at some time during the year.
  - c. No species are present at any time during the year.

b.	b.	b.
?	?	?
c.	c.	c.

**Streams connected to the wetland**

Complete this section only if the wetland being assessed has an unimpeded surface water connection to a stream.

- ✓30. What is the physical character of the stream channel? To observe stream channel modifications, look for built rock banks, cement sides, straightened areas or other human-created features.
- a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel.
  - b. Only portions of the stream are modified.
  - c. The stream is extensively modified or confined in a non-vegetated channel or pipe.

b.	b.	c.
----	----	----

- ✓31. What percentage of the stream is shaded by streamside (riparian) vegetation?
- a. Greater than 75%.
  - b. Between 50 and 75%.
  - c. 25% or more, but less than 50%.
  - d. Less than 25%.

	d.	d.
--	----	----

- ✓32. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders?
- a. Greater than 25%.
  - b. Between 10% and 25%.
  - c. Less than 10%.

--	--	--

**Lakes or ponds** (entire lake or pond and wetland complex)

Complete this section only if the wetland being assessed has a surface water connection to a lake or pond.

33. Does the lake or pond contain areas of deep and shallow water? ("Deep" is defined as more than 6.5 feet deep.)
- a. Yes.
  - b. Cannot be determined.
  - c. No.

	b.	
--	----	--

Watershed identification \_\_\_\_\_

**Wetland Characterization (Page 12 of 19)**

	JD-1	JD-2	JD-3
	Wetland 1	Wetland 2	Wetland 3
<p>✓34. What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation?</p> <p>a. 60% or more. b. 20% or more, but less than 60%. c. Less than 20%.</p>	b.	c.	c.
<p>✓35. What percentage of the wetland complex contains cover objects such as submerged logs, <u>floating or submerged vegetation</u>, large rocks or boulders?</p> <p>a. Greater than 25% b. Between 10 and 25% c. Less than 10%</p>	b.	b.	c.
<b>Wetland hydrology</b>			
<p>36. What is the wetland's <b>primary</b> source of water? (Determine in the field or in the office. This may be difficult to determine. If a surface water connection exists—stream, lake, ditch—use it as the primary source. If no surface water connection is present, talk to local natural resource people for hints.)</p> <p>a. Surface flow, including streams and ditches. b. Precipitation or sheet flow. c. Groundwater, including springs or seeps.</p>	a.	a.	a.
<p>✓37. Is there evidence of flooding or ponding during a portion of the growing season? Look for evidence of water fluctuation such as sediment stains on trees, <u>drift lines</u>, surface scour or sediment deposits. Also look at the location of the wetland. Is it in a distinct topographic depression or adjacent to a stream that is known to flood or fluctuate because of storm pulses?</p> <p>a. Yes (describe). b. Unable to determine or not applicable. c. No.</p>	a.	a.	a.
	(witnessed these areas fill with water)		
<p>✓38. Is water flow out of the wetland restricted (e.g., beaver dam, concrete structure, undersized culvert)?</p> <p>a. Yes, the outlet is restricted or the wetland has no outlet. b. Minor restrictions slow down the water (e.g., undersized culvert). c. No, the outlet has unrestricted flow.</p>	c.	a.	b.

Watershed identification \_\_\_\_\_

**Wetland Characterization (Page 13 of 19)**

✓39. If the primary source of water is surface flow, is the water flow into the wetland restricted?

- a. Flow is not restricted, or if blocked, the obstruction can be removed easily.
- b. Permanent blockage to the flow exists but may be breached or a new flow channel created (engineering or earth moving solution).
- c. Flow is restricted and cannot be restored.

40. Has the stream flow or stream bank been modified by human activities less than 1 mile above the wetland? Modifications include dams, channelizations and levees, and confinement of the stream in a pipe.

- a. Yes.
- b. No.

**Public access to wetland site** (select an appropriate area to observe the wetland to answer these questions.)

41. Is the wetland site open to the public for direct access or observation?

- a. Yes, the wetland is open to the public.
- b. Yes, but wetland access is allowed only by permission of the landowner or managing entity.
- c. No, access is not allowed.

✓42. Are there visible hazards to the public at the wetland site? (Examples: busy road adjacent to the site, and no buffer or sidewalk exists; steep embankment; and contaminated water.)

- a. No.
- b. One or two visible safety hazards exist (describe).
- c. More than two visible safety hazards exist (describe).

✓43. Are there other natural landscape features, such as a stream, lake, pond, forest or agricultural land contiguous or adjacent to the wetland?

- a. Yes. (List type and extent.)
- b. No.

	JD-1 Wetland 1	JD-2 Wetland 2	JD-3 Wetland 3
39	b. (Has culvert)	c.	c.
40	a.	a.	a.
Public access to wetland site	a./c.		
41	When River Glen Sub. is platted the wetland will be open to the public	b. A public park abuts the wetland but wetland is private.	c. observable from Hwy. right-of-way.
42	b. (RR Tracks)	(RR Tracks) c. (TV Hwy)	(RR Tracks) c. (TV Hwy)
43	a.	a)	a.
	Agriculture borders 50%	Agriculture borders approximately 15-20%	Agriculture borders @ 45%

Watershed identification \_\_\_\_\_

**Wetland Characterization (Page 14 of 19)**

JD-1 | JD-2 | JD-3  
 Wetland 1 | Wetland 2 | Wetland 3

✓44. Is there existing physical public access to features listed in Question 43? If not, can such access be created easily, or can other habitats be observed from the site? For a stream, pond or lake, access may require dry ground to the water's edge. Stream access could also be at a road crossing, but consider the safety at such locations

- a. Public access to other habitats exists or can be created easily.
- b. Public access doesn't exist and can't be created easily, but observation of other features can be made from the site.
- c. Public access doesn't exist and can't be created easily. In addition, observation of other features can't be made from the site.

b.	b.	b.
(Access proposed w/ sub-division development)		

✓45. Does it appear that access to a viewing spot or wetland edge is available for individuals with limited mobility? (To see whether the site meets ADA requirements, a more thorough examination should be done.)

- a. Yes.
- b. No. (List physical barriers.)

b.	a.	b.
Future Develop of River-glen Pub may provide Access	B.ct does not meet ADA Standards	Hwy + Private Property

✓46. Is there a public access point within 250 feet of the wetland's edge? Access points include parking lots, transit stops, bike lanes, trails and water courses. Maintained means that the area is designated as a car or transit area by the managing entity. Unmaintained would be a road pull-off or other area that people use but is not designated for such use. Describe the type of access.

- a. Yes, a maintained access point exists (describe).
- b. Yes, an unmaintained access point exists (describe).
- c. No access point exists, or the access point is hazardous.

c.	a.	c.
	Ryland Park	

**Recreation**

✓47. Is the wetland accessible by boat?

- a. Boat launching areas or access points exist on site or within 1/2 mile on a connected lake, river, bay or other body of water.
- b. Potential to develop boat launching areas or access points exists, or such features are more than 1/2 mile but less than 1 mile from the wetland.
- c. No boat launching areas or access points exist within 1 mile of the wetland, and potential to develop launching areas or access points is limited.

c.	c.	c.
----	----	----

Watershed identification \_\_\_\_\_

JD-1      JD-2      JD-3

**Wetland Characterization (Page 17 of 19)**

✓48. Are there trails, viewing areas or other structures that guide user movement to a particular area or areas in or around the wetland?  
 a. Yes, developed or maintained trails or viewing areas exist.  
 b. Yes, undeveloped trails or viewing areas exist that do not disrupt wildlife or plant habitat.  
 c. No trails or viewing areas exist, or those that do disrupt wildlife or plant habitat.

49. Is fishing allowed at the wetland or connected water body? (Contact local Oregon Department of Fish and Wildlife office.) Answer "not applicable" if question 18 was answered "b" or "c," unless question 21 indicates that 10% or more of the wetland's area is covered by open water.  
 a. Yes (either all or part of the year).  
 b. No.  
 c. Not applicable.

50. Is hunting allowed at the wetland? (If the wetland is within the city limits, hunting is not allowed. Otherwise, contact the local Oregon Department of Fish and Wildlife office for this information.)  
 a. Yes (either all or part of the year).  
 b. No.

**Aesthetics**

✓51. For rural areas, what is the extent of visual contrast with the surrounding landscape? (See Figure 6.)  
 a. Significant contrast with surrounding landscape.  
 b. Limited contrast with surrounding landscape.  
 c. Little or no contrast with surrounding landscape.

✓52. For urban areas, what is the visual character of the surrounding area? (See Figure 7.)  
 a. Open space or naturally landscaped areas.  
 b. Areas landscaped or manipulated by people.  
 c. Developed with no landscaping.

✓53. Are there visual detractors at the wetland site such as abandoned cars, litter, shopping carts or other objects that distract the viewer from the wetland?  
 a. Yes.  
 b. No.

	Wetland 1	Wetland 2	Wetland 3
48. Are there trails, viewing areas or other structures that guide user movement to a particular area or areas in or around the wetland? a. Yes, developed or maintained trails or viewing areas exist. b. Yes, undeveloped trails or viewing areas exist that do not disrupt wildlife or plant habitat. c. No trails or viewing areas exist, or those that do disrupt wildlife or plant habitat.	c.	b. Ryland Park	c.
49. Is fishing allowed at the wetland or connected water body? (Contact local Oregon Department of Fish and Wildlife office.) Answer "not applicable" if question 18 was answered "b" or "c," unless question 21 indicates that 10% or more of the wetland's area is covered by open water. a. Yes (either all or part of the year). b. No. c. Not applicable.	a.	a.	a.
50. Is hunting allowed at the wetland? (If the wetland is within the city limits, hunting is not allowed. Otherwise, contact the local Oregon Department of Fish and Wildlife office for this information.) a. Yes (either all or part of the year). b. No.	b.	b.	b.
<b>Aesthetics</b>			
✓51. For rural areas, what is the extent of visual contrast with the surrounding landscape? (See Figure 6.) a. Significant contrast with surrounding landscape. b. Limited contrast with surrounding landscape. c. Little or no contrast with surrounding landscape.			
✓52. For urban areas, what is the visual character of the surrounding area? (See Figure 7.) a. Open space or naturally landscaped areas. b. Areas landscaped or manipulated by people. c. Developed with no landscaping.	a. & b.	b.	a. & c.
✓53. Are there visual detractors at the wetland site such as abandoned cars, litter, shopping carts or other objects that distract the viewer from the wetland? a. Yes. b. No.	b.	b.	b.

Watershed identification \_\_\_\_\_

**Wetland Characterization (Page 18 of 19)**

- ✓54. If the wetland contains visual detractors, as indicated in question 53, can they be removed easily?
- a. Yes.
  - b. No.

**Locate the primary viewing area(s) for the following four questions (be sure to indicate the location on the overlay).**

- ✓55. What odors are present at the primary viewing location(s)?
- a. Natural, pleasant odors only.
  - b. Unpleasant odors such as automobile exhaust or stench from a sewage treatment plant are present at certain times.
  - c. Unpleasant odors are distinct and continuously present.



**Figure 6. Visual contrast.**

The top part of the figure shows a wetland with significant visual contrast with the surrounding landscape. The bottom part shows a wetland with little or no visual contrast with the surrounding landscape.

	Wetland 1	Wetland 2	Wetland 3
54.	a. (with access permission)	a. (w/access)	a. (w/access)
55.	a.	a.	b.

Watershed identification \_\_\_\_\_

JD-1 | JD-2 | JD-3  
 Wetland 1 | Wetland 2 | Wetland 3

**Wetland Characterization (Page 19 of 19)**

- ✓56 - What noises are audible at the primary viewing location(s)?
- a. Bird and wildlife noises and other naturally occurring sounds.
  - b. Some traffic and other similar background sounds are audible in addition to naturally occurring sounds.
  - c. Continuous traffic or other intrusive noise is audible in addition to naturally occurring sounds.
  - d. Continuous traffic or other intrusive noise is audible, but no naturally occurring sounds are.

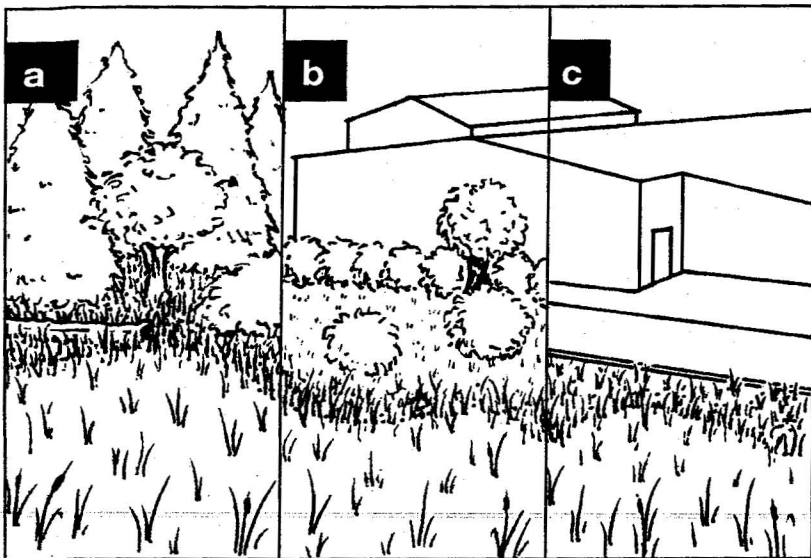
b. (RR)	b.	d.
------------	----	----

- ✓57 - How much of the wetland is visible from the viewing area(s)? Describe the view.
- a. Greater than 50%.
  - b. Between 25% and 50%.
  - c. Less than 25%.

a (RR)	a.	a.
-----------	----	----

- ✓58 - How many Cowardin classes are visible from the primary viewing area(s)? (See question 21 for list of Cowardin classes to use.)
- a. More than two.
  - b. Two
  - c. One

--	--	--



**Figure 7. Visual character of urban wetlands.**  
 Beginning with the left part, this figure shows an urban wetland with naturally landscaped areas, areas landscaped by people and with unlandscaped developed areas.

**WETLANDS OF SPECIAL  
INTEREST FORMS**

CC-1

CCD4-1

Wetland 1

Wetland 2

Wetland 3

# Wetlands of Special Interest for Protection

The first filter in the Oregon Method is to see whether the wetland is in a management plan, is protected by regulatory rules or statutes, or is uncommon in Oregon. A "yes" answer to any of the following questions will place the wetland into this category and management decisions should be made to protect the site. You still may want to evaluate the functions and conditions of each wetland to give you an overall evaluation of the wetlands in your assessment area. You should note on the Function and Condition Summary Sheet (Chapter VI and Appendix C) the information from this section. You do not need to contact every agency listed, but all those listed have all or some of the information you need.

### Question 1

Does the wetland contain threatened, endangered or sensitive species of wildlife, plants, invertebrates or fish? (Either federal- or state-listed. Include species.) If yes, list.

- a. Yes
  - b. No
  - c. Unknown
- List:

### Information source

Oregon Natural Heritage Program, The Nature Conservancy, U.S. Fish and Wildlife Service, National Marine Fisheries Service, Oregon Department of Fish and Wildlife, Oregon Department of Agriculture.

### Question 2

Is the wetland designated as critical habitat or essential habitat for federal- or state-listed threatened or endangered species of wildlife, plants, invertebrates or fish? If yes, list species.

- a. Yes
  - b. No
  - c. Unknown
- List:

### Information source

U.S. Fish and Wildlife Service, National Marine Fisheries Service, The Nature Conservancy.

Wetland 1	Wetland 2	Wetland 3
No	No	
No	No	

CC-1 | CCDU-1  
 Wetland 1    Wetland 2    Wetland 3

**Question 3**

Is the wetland a dedicated or proposed Registered State Natural Area or Area of Critical Environmental Concern, State Natural Heritage Conservation Area, Federal Research Natural Area, or a Nature Conservancy Preserve?

- a. Yes
  - b. No
  - c. Unknown
- List which it is:

**Information source**

The Nature Conservancy, the Oregon Natural Heritage Program, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, National Park Service and Corps of Engineers.

~~**Question 4**~~

~~Is the wetland of regional or national significance for migratory birds?~~

- a. Yes
  - b. No
  - c. Unknown
- List which species:

~~**Information source**~~

~~U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife.~~

**Question 5**

Is the wetland protected in a local wetland conservation plan or a local comprehensive plan as a Goal 5 or Goal 17 resource?

- a. Yes
- b. No
- c. Unknown

**Information source**

Local planning office.

~~**Question 6**~~

~~Is the wetland a designated State Outstanding Resource Water?~~

- a. Yes
- b. No
- c. Unknown

~~**Information source**~~

~~Oregon Department of Environmental Quality. (As of 1996, DEQ has not made any such designations.)~~

Wetland 1	Wetland 2	Wetland 3
No	No	
	No	

CC-1 | CCDU-1  
 Wetland 1 | Wetland 2 | Wetland 3

**Question 7**

Is the wetland a protected area in a recognized federal, state or local management plan, e.g., for a park, refuge or scenic river?

- a. Yes
  - b. No
  - c. Unknown
- List name:

**Information source**

Oregon Department of Fish and Wildlife, State Parks, U.S. Fish and Wildlife Service, Bonneville Power Administration, Bureau of Land Management, National Park Service, METRO, local parks department.

~~**Question 8**~~

~~Is the wetland a *protected* mitigation site for a removal-fill permit, federal 404 fill permit, or enforcement action? Protected means there is a legal instrument, such as a conservation easement, that will preclude a wetland impact permit from being issued for this site.~~

- a. Yes
- b. No
- c. Unknown

~~**Information source**~~

~~Oregon Division of State Lands, Corps of Engineers, Environmental Protection Agency.~~

**Question 9**

Is the wetland a restoration or protected area included in the wetland reserve program administered by the Natural Resources Conservation Service? The length of protection may vary depending on landowner agreements.

- a. Yes
- b. No
- c. Unknown

**Information source**

Natural Resources Conservation Service, Consolidated Farm Services Agency.

Wetland 1	Wetland 2	Wetland 3
	No	
No	No	

CC-1

CCDU-1

Wetland 1

Wetland 2

Wetland 3

**Question 10**

Is the wetland considered rare or unique in Oregon? Examples include bogs, vernal pools and old growth forested wetlands (See Appendix G).

- a. Yes
- b. No
- c. Unknown

**Information source**

The Nature Conservancy, Oregon Division of State Lands, the Oregon Natural Heritage Program.

Wetland 1	Wetland 2	Wetland 3
No	No	

# Wetlands of Special Interest for Protection

The first filter in the Oregon Method is to see whether the wetland is in a management plan, is protected by regulatory rules or statutes, or is uncommon in Oregon. A "yes" answer to any of the following questions will place the wetland into this category and management decisions should be made to protect the site. You still may want to evaluate the functions and conditions of each wetland to give you an overall evaluation of the wetlands in your assessment area. You should note on the Function and Condition Summary Sheet (Chapter VI and Appendix C) the information from this section. You do not need to contact every agency listed, but all those listed have all or some of the information you need.

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- a. Yes
  - b. No
  - c. Unknown
- List:

### Information source

Oregon Natural Heritage Program, The Nature Conservancy, U.S. Fish and Wildlife Service, National Marine Fisheries Service, Oregon Department of Fish and Wildlife, Oregon Department of Agriculture.

## Question 2

Is the wetland designated as critical habitat or essential habitat for federal- or state-listed threatened or endangered species of wildlife, plants, invertebrates or fish? If yes, list species.

- a. Yes
  - b. No
  - c. Unknown
- List:

### Information source

U.S. Fish and Wildlife Service, National Marine Fisheries Service, The Nature Conservancy.

TD-1 Wetland 1	TD-2 Wetland 2	TD-3 Wetland 3
No	No	No
No	No	No

TD-1    TD-2    TD-3  
 Wetland 1    Wetland 2    Wetland 3

**Question 3**

Is the wetland a dedicated or proposed Registered State Natural Area or Area of Critical Environmental Concern, State Natural Heritage Conservation Area, Federal Research Natural Area, or a Nature Conservancy Preserve?

- a. Yes
  - b. No
  - c. Unknown
- List which it is:

**Information source**

The Nature Conservancy, the Oregon Natural Heritage Program, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, National Park Service and Corps of Engineers.

~~**Question 4**~~

~~Is the wetland of regional or national significance for migratory birds?~~

- a. Yes
  - b. No
  - c. Unknown
- List which species:

~~**Information source**~~

~~U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife.~~

**Question 5**

Is the wetland protected in a local wetland conservation plan or a local comprehensive plan as a Goal 5 or Goal 17 resource?

- a. Yes
- b. No
- c. Unknown

**Information source**

Local planning office.

~~**Question 6**~~

~~Is the wetland a designated State Outstanding Resource Water?~~

- a. Yes
- b. No
- c. Unknown

~~**Information source**~~

~~Oregon Department of Environmental Quality. (As of 1996, DEQ has not made any such designations.)~~

Wetland 1	Wetland 2	Wetland 3
No	No	No
No	No	No

TD-1 Wetland 1	TD-2 Wetland 2	TD-3 Wetland 3
		No
No	No	No

**Question 7**

Is the wetland a protected area in a recognized federal, state or local management plan, e.g., for a park, refuge or scenic river?

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  - c. Unknown
- List name:

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- a. Yes
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- c. Unknown

~~**Information source**~~

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- a. Yes
- b. No
- c. Unknown

**Information source**

Natural Resources Conservation Service, Consolidated Farm Services Agency.

TD-1 | TD-2 | TD-3  
Wetland 1 | Wetland 2 | Wetland 3

**Question 10**

Is the wetland considered rare or unique in Oregon? Examples include bogs, vernal pools and old growth forested wetlands (See Appendix G).

- a. Yes
- b. No
- c. Unknown

**Information source**

The Nature Conservancy, Oregon Division of State Lands, the Oregon Natural Heritage Program.

Wetland 1	Wetland 2	Wetland 3
No	No	No

TR-1 | TR-2  
 Wetland 1 | Wetland 2 | Wetland 3

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a. Yes  
 b. No  
 c. Unknown  
 List:

**Information source**

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**Question 2**

Is the wetland designated as critical habitat or essential habitat for federal- or state-listed threatened or endangered species of wildlife, plants, invertebrates or fish? If yes, list species.

a. Yes  
 b. No  
 c. Unknown  
 List:

**Information source**

U.S. Fish and Wildlife Service, National Marine Fisheries Service, The Nature Conservancy.

Wetland 1	Wetland 2	Wetland 3
No	No	
No	No	

TR-1 | TR-2  
 Wetland 1 | Wetland 2 | Wetland 3

**Question 3**

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  - c. Unknown
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  - b. No
  - c. Unknown
- List which species:

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- a. Yes
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**Information source**

Local planning office.

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~~Is the wetland a designated State Outstanding Resource Water?~~

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- b. No
- c. Unknown

~~**Information source**~~

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Wetland 1	Wetland 2	Wetland 3
No	No	
No	No	

TR-1 Wetland 1	TR-2 Wetland 2	Wetland 3
	No	
	No	

**Question 7**

Is the wetland a protected area in a recognized federal, state or local management plan, e.g., for a park, refuge or scenic river?

- a. Yes
  - b. No
  - c. Unknown
- List name:

**Information source**

Oregon Department of Fish and Wildlife, State Parks, U.S. Fish and Wildlife Service, Bonneville Power Administration, Bureau of Land Management, National Park Service, METRO, local parks department.

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**Question 9**

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- a. Yes
- b. No
- c. Unknown

**Information source**

Natural Resources Conservation Service, Consolidated Farm Services Agency.

TR-1 | TR-2

Wetland 1    Wetland 2    Wetland 3

**Question 10**

Is the wetland considered rare or unique in Oregon? Examples include bogs, vernal pools and old growth forested wetlands (See Appendix G).

a. Yes  
b. No  
c. Unknown

**Information source**

The Nature Conservancy, Oregon Division of State Lands, the Oregon Natural Heritage Program.

Wetland 1	Wetland 2	Wetland 3
No	No	

# Wetlands of Special Interest for Protection

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  - b. No
  - c. Unknown
- List:

**Information source**

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- a. Yes
  - b. No
  - c. Unknown
- List:

**Information source**

U.S. Fish and Wildlife Service, National Marine Fisheries Service, The Nature Conservancy.

	JD-1 Wetland 1	JD-2 Wetland 2	Wetland 3
Question 1	No	No	
Question 2	No	No	

JD-1

JD-2

Wetland 1

Wetland 2

Wetland 3

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  - c. Unknown
- List which it is:

**Information source**

The Nature Conservancy, the Oregon Natural Heritage Program, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, National Park Service and Corps of Engineers.

No

No

~~**Question 4**~~

~~Is the wetland of regional or national significance for migratory birds?~~

- a. Yes
  - b. No
  - c. Unknown
- List which species:

~~**Information source**~~

~~U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife.~~

**Question 5**

Is the wetland protected in a local wetland conservation plan or a local comprehensive plan as a Goal 5 or Goal 17 resource?

- a. Yes
- b. No
- c. Unknown

**Information source**

Local planning office.

No

NO

~~**Question 6**~~

~~Is the wetland a designated State Outstanding Resource Water?~~

- a. Yes
- b. No
- c. Unknown

~~**Information source**~~

~~Oregon Department of Environmental Quality. (As of 1996, DEQ has not made any such designations.)~~

JD-1

JD-2

Wetland 1

Wetland 2

Wetland 3

**Question 7**

Is the wetland a protected area in a recognized federal, state or local management plan, e.g., for a park, refuge or scenic river?

- a. Yes
  - b. No
  - c. Unknown
- List name:

**Information source**

Oregon Department of Fish and Wildlife, State Parks, U.S. Fish and Wildlife Service, Bonneville Power Administration, Bureau of Land Management, National Park Service, METRO, local parks department.

No	No	
----	----	--

~~**Question 8**~~

~~Is the wetland a *protected* mitigation site for a removal-fill permit, federal 404 fill permit, or enforcement action? Protected means there is a legal instrument, such as a conservation easement, that will preclude a wetland impact permit from being issued for this site.~~

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- b. No
- c. Unknown

~~**Information source**~~

~~Oregon Division of State Lands, Corps of Engineers, Environmental Protection Agency.~~

--	--	--

**Question 9**

Is the wetland a restoration or protected area included in the wetland reserve program administered by the Natural Resources Conservation Service? The length of protection may vary depending on landowner agreements.

- a. Yes
- b. No
- c. Unknown

**Information source**

Natural Resources Conservation Service, Consolidated Farm Services Agency.

No	No	
----	----	--

JD-1 | JD-2  
Wetland 1    Wetland 2    Wetland 3

**Question 10**

Is the wetland considered rare or unique in Oregon? Examples include bogs, vernal pools and old growth forested wetlands (See Appendix G).

- a. Yes
- b. No
- c. Unknown

**Information source**

The Nature Conservancy, Oregon Division of State Lands, the Oregon Natural Heritage Program.

Wetland 1	Wetland 2	Wetland 3
No	No	

## **SUPELMENTAL REFERENCE MATERIAL**

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# Water Quality


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## Water Quality Limited Streams Database Details for Waterbody Segment Record ID 6198

The table below provides details for **Record ID 6198**.

Field	Details
Segment ID	22M-COUN0
Basin Name	Willamette
Sub Basin Name	Tualatin
Waterbody Name	<u>Council Creek</u>
Waterbody Boundaries	<u>Mouth to Headwaters</u>
Parameter	<u>Dissolved Oxygen (DO)</u>
Criteria	Cool-water aquatic resources: DO < 6.5 mg/l
Season	May 1 - October 31
Listing Status	303(d) List
Basis for Consideration for Listing	USA Data
Supporting Data	USA Data (Site 3812009; RM 0.9): 100% (13 of 13) May to October values exceeded dissolved oxygen standard (6.5 mg/l) with a minimum of 0.1 mg/l in 1990 (Cool water fishery, annual).
Rationale for not Listing	Not Applicable
Change from 1996 List	No Change

For more information please contact Marilyn Fonseca by email at [fonseca.marilyn@deq.state.or.us](mailto:fonseca.marilyn@deq.state.or.us) or by phone at (503) 229-6804.

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# Water Quality

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## Water Quality Limited Streams Database Details for Waterbody Segment Record ID 6996

The table below provides details for **Record ID 6996**.

Field	Details
<b>Segment ID</b>	22M-TUAL0
<b>Basin Name</b>	Willamette
<b>Sub Basin Name</b>	Tualatin
<b>Waterbody Name</b>	<u>Tualatin River</u>
<b>Waterbody Boundaries</b>	<u>Mouth to Dairy Creek</u>
<b>Parameter</b>	<u>Bacteria</u>
<b>Criteria</b>	Water Contact Recreation (E. coli) Fresh Water
<b>Season</b>	Fall-Winter-Spring
<b>Listing Status</b>	303(d) List
<b>Basis for Consideration for Listing</b>	USA/DEQ Data; USGS Data; NPS Assessment - segment 18: moderate, data (DEQ, 1988)
<b>Supporting Data</b>	USA Data (8 Sites: RM 0.2 - 39.0): 4% (2 of 49, 45); 7% (3 of 46); 4% (2 of 49); 0% (0 of 46, 13, 10, 48) FWS values respectively exceeded E coli standard (406) with maximum values of 800, 600, 980, 1200, between WY 1986 - 1995.
<b>Rationale for not Listing</b>	Not Applicable
<b>Change from 1996 List</b>	No Change

For more information please contact Marilyn Fonseca by email at [fonseca.marilyn@deq.state.or.us](mailto:fonseca.marilyn@deq.state.or.us) or by phone at (503) 229-6804.

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## Oregon's Final 1998 303(d) List

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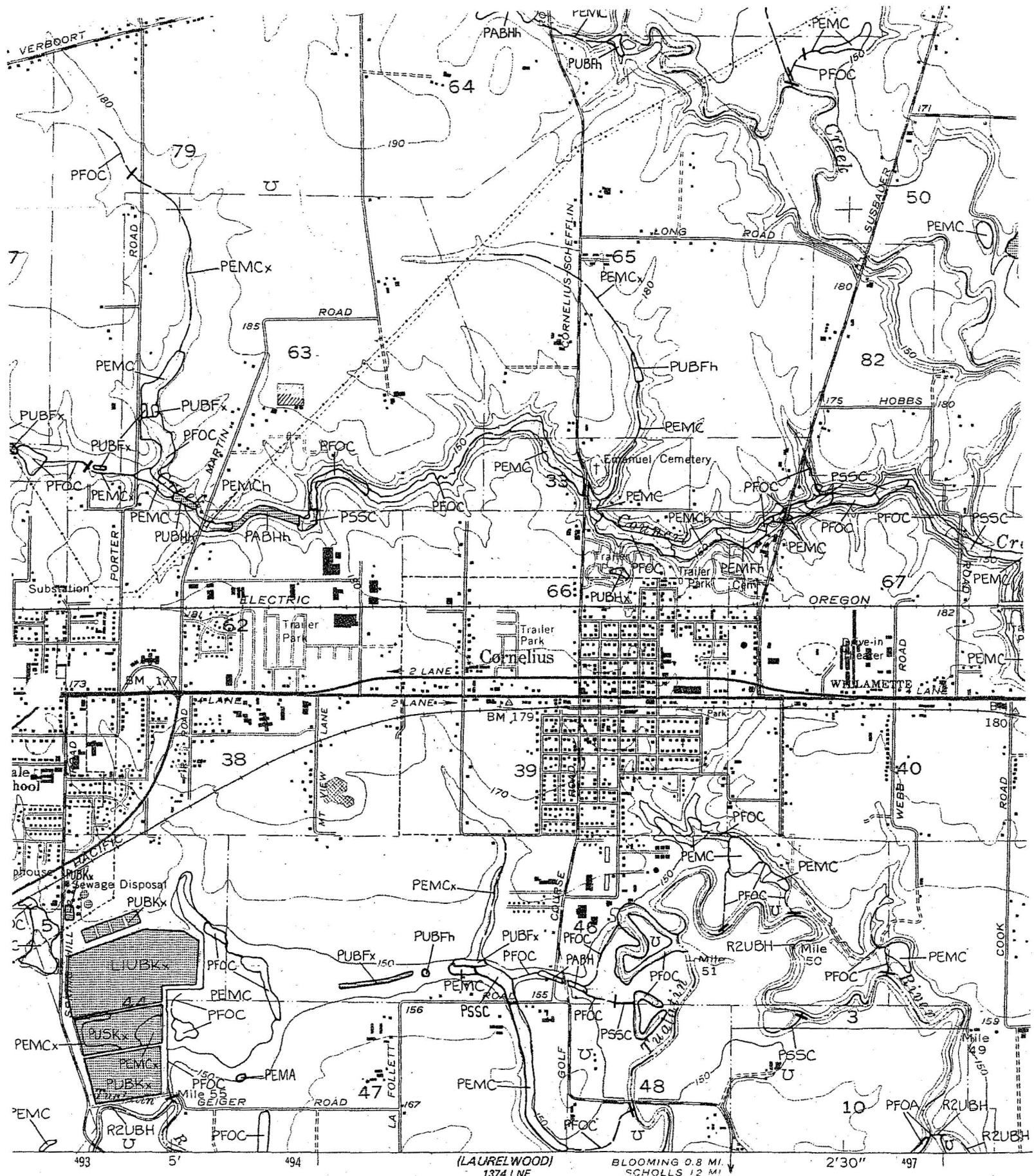
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Basin Sub Basin	Name & Description	Parameter	Criteria	Season	Supporting Data or Information	Change From 1994/96
Willamette Tualatin	Scoggins Creek Mouth to Hagg Lake (Scoggins Res)	Dissolved Oxygen (DO)		November 1 - April 30	USA Data (Site 3805015; RM 1.5): 4% (8 of 20) November through April values exceeded dissolved oxygen standard (11 mg/l or 95% saturation) with a minimum of 9.9 (84% sat) between 1993 - 1995 (Cold water spawning).	No Change
Willamette Tualatin	Summer Creek Mouth to Headwaters	Bacteria	Water Contact Recreation (fecal coliform- 96 Std)	Summer	USA Data (Site 3844018; RM 1.8): 33% (4 of 12) Summer values exceeded fecal coliform standard (400) with a maximum value of 1500 in 1990.	No Change
Willamette Tualatin	Summer Creek Mouth to Headwaters	Bacteria	Water Contact Recreation (fecal coliform- 96 Std)	Fall- Winter- Spring	USA Data (Site 3844018; RM 1.8): 50% (3 of 6) FWS values exceeded fecal coliform standard (400) with a maximum value of 1000 in 1990.	No Change
Willamette Tualatin	Summer Creek Mouth to Headwaters	Biological Criteria	Fish Communities		ODFW Data (3 Sites: Lower, Middle, Upper): Index of Biotic Integrity (IBI) scores of poor (<30) were found in 3 of 3 reaches with scores of 26/20/12 respectively.	No Change
Willamette Tualatin	Summer Creek Mouth to Headwaters	Dissolved Oxygen (DO)	Cool-water aquatic resources: DO < 6.5 mg/l	May 1 - October 31	USA Data (Site 3844018; RM 1.8): 92% (23 of 25) May to October exceeded dissolved oxygen standard (6.5 mg/l) with a minimum of 0.7 mg/l in 1990 (Cool water fishery, annual).	No Change
Willamette Tualatin	Summer Creek Mouth to Headwaters	Temperature	Rearing 64 F (17.8 C)	Summer	USA Data (Site 3844018; RM 1.8): 69% (11 of 16) Summer values exceeded temperature standard (64) with exceedences each year and a maximum of 70.3 in 1990.	No Change
Willamette Tualatin	Tualatin River Mouth to Dairy Creek	Bacteria	Water Contact Recreation (E. coli) Fresh Water	Fall- Winter- Spring	USA Data (8 Sites: RM 0.2 - 39.0): 4% (2 of 49, 45); 7% (3 of 46); 4% (2 of 49); 0% (0 of 46, 13, 10, 48) FWS values respectively exceeded E coli standard (406) with maximum values of 800, 600, 980, 1200, between WY 1986 - 1995.	No Change
Willamette Tualatin	Tualatin River Mouth to Dairy Creek	Bacteria	Water Contact Recreation (E. coli) Fresh Water	Summer	USA Data (8 Sites: RM 0.2 - 39.0): 0% (0 of 42, 41, 42, 5); 5% (2 of 42, 41); 2% (1 of 41); 12% (2 of 17) Summer values exceeded E coli standard (406) with maximum values of 1200, 980, 1000, 1600 between WY 1986 - 1995.	No Change
Willamette Tualatin	Tualatin River Mouth to Dairy Creek	Temperature	Rearing 64 F (17.8 C)	Summer	USA Data (6 Sites: From RM 0.2 - 27.1): 81% (81 of 130); 73% (1681 of 2292); 74% (896 of 1215); 62% (486 of 786); 60% (1069 of 1788); 41% (712 of 1739) Summer values exceeded temp standard (64) with exceedences each year and a maximum of 79 from 86 - 95.	No Change
Willamette Tualatin	Willow Creek Mouth to Headwaters	Bacteria	Water Contact Recreation (fecal coliform- 96 Std)	Fall- Winter- Spring	USA Data (Site 3825004; RM 0.4): 36% (4 of 11) FWS values exceeded fecal coliform standard (400) with a maximum value of 2000 between 1990 - 1994.	No Change

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**SPECIAL NOTE**

This document was prepared primarily by stereoscopic analysis of high altitude aerial photographs. Wetlands were identified on the photographs based on vegetation, visible

**SYMBOLGY EXAMPLE**

**NOTES TO THE USE**

- Wetlands which hav on the map by an as
- Additions or correcti

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