Local Wetlands Inventory and Riparian Corridor Assessment for the Glenwood Area of Springfield, Oregon

Prepared for

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1.0 INTRODUCTION

The Lane Council of Governments (LCOG) hired Pacific Habitat Services, Inc. (PHS) to conduct a Local Wetlands Inventory (LWI) and Riparian Corridor Assessment within the 677 acre Glenwood area of Springfield, located east of I-5, south and west of the Willamette River (Township 17 South, Range 3 West, Sections 33 and 34, and Township 18 South, Range 3 West, Sections 02 and 03 Willamette Meridian). The approximate study area is shown on Figure 1. All figures are in Appendix A.

The goal of the study was to address the wetland and riparian requirements of Statewide Planning Goal 5 (*Natural Resources, Scenic and Historic Areas, and Open Spaces)* Oregon Administrative Rule (OAR) Section 660, Division 23. The objective of Goal 5 is to "protect natural resources and conserve scenic, historic and open space resources for present and future generations."

PHS determined the general location, approximate size, and quality/condition of wetlands throughout the study area. The quality/condition of wetlands was determined by applying the Oregon Freshwater Wetland Assessment Methodology (OFWAM) where appropriate, and then determining whether wetlands are locally significant by applying the criteria contained in State administrative rules (OAR 141-86-300-350). This report presents the results of the wetland inventory and riparian assessment.

1.1 Report Format

This report begins with definitions used in the report and inventory (Section 2). Section 3 includes a discussion of the methodology used to conduct the field work for the LWI; the wetland assessment methodology; and the methodology used to produce the maps for the inventory. Section 4 is a brief discussion of project cartography. Section 5 describes general conditions within the study area, addressing climate, topography, soils and vegetation. Section 6 is a more detailed discussion of wetlands within the study area and addresses wetland distribution, acreage, and Cowardin classification. Section 7 discusses the results of the *Oregon Freshwater Wetland Assessment Methodology* and Section 8 lists Locally Significant Wetlands in the study area. Section 9 describes options for designating riparian corridors within Glenwood's UGB. Section 10 presents staff qualifications. Section 11 provides a list of the references used in the report.

There are eight appendices to the report. Appendix A contains figures illustrating general location, soils, the National Wetlands Inventory maps of the study area. It also includes maps identifying the wetlands and riparian areas within the study area.

Appendix B contains the wetland characterization forms for each wetland, organized by wetland code. The characterization sheets note wetland location, tax lots, acreage, Cowardin classification, Hydrogeomorphic (HGM) classification, soil series, wetland and adjacent upland vegetation, and other unique or clarifying notes related to the wetland. This form was completed for each wetland unit of greater than one-half acre in size. If it was an on-site determination, sample point numbers are noted and included in Appendix C. Locally significant wetlands are also noted on the characterization form.

Appendix C contains the wetland determination data forms. These forms document wetland and upland conditions where access was granted. Hydrology, soils, and dominant vegetation are recorded for each sample point where wetland or upland data was collected.

Appendix D is the *Oregon Freshwater Wetland Assessment Methodology* (OFWAM) data and summary for each wetland unit. Each wetland's functions and conditions are assessed according to an established state methodology. The results and rationale are also summarized for each wetland unit.

Appendix E contains the determination of significance for each wetland unit.

Appendix F includes OFWAM field forms and watershed summary tables that aided in answering many of the questions in OFWAM.

Appendix G includes the riparian data forms.

2.0 DEFINITIONS

These terms helped define the methodology used for the Glenwood Local Wetlands Inventory and may be referred to in this report.

1987 Manual

The primary source documents for wetland delineations within Oregon is the *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1* (Environmental Laboratory 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region*, which are recognized by both DSL and COE (Regional Supplement; U.S Army Corps, 2008).

These manuals are used by the Army Corps of Engineers ("Corps") and the Oregon Department of State Lands ("DSL") to document the location of wetlands within the State of Oregon. The 1987 manual, along with regional supplement, provide technical criteria, field indicators, and recommended procedures to be used in determining whether an area is a jurisdictional wetland. Undisturbed areas require three criteria for them to be classified as wetland. These criteria are hydric soils, a dominance of hydrophytic vegetation, and wetland hydrology.

Cowardin Wetland Classification

The classification of wetlands as defined by plants, soils and the frequency of flooding is described in *"Classification of wetlands and deepwater habitats of the United States."* (Cowardin, et. al. 1979) See also "Palustrine Wetlands".

Field verify

To walk over and/or visually check an area to make a wetland determination and map wetlands. This may or may not include on-site access or the collection of sample plot data. (OAR 141-086)

Goal 5

Goal 5 (OAR 660, Division 23) is intended "to protect natural resources, and conserve scenic and historic areas and open spaces." (Land Conservation and Development Commission [LCDC], 1996)

Growing Season

The growing season has begun and is ongoing when either of the two following conditions is met:

1) Two or more non-evergreen vascular plant species growing in the wetland or surrounding areas exhibit one or more of a specific list of indicators of biological activity (such as leaf emergence; appearance of new growth; emergence or opening of flowers; etc.)

2) When soil temperature measured at a depth of 12 inches is 41°F (5°C) or higher

Hydric Soils

"Soils which are ponded, flooded, or saturated for long enough during the growing season to develop anaerobic conditions." (USDA, SCS, 1985)

Periodic saturation of soils causes alternation of reduced and oxidized conditions which leads to the formation of redoximorphic features (gleying and mottling). Mineral hydric soils will be either gleyed or will have bright mottles and/or low matrix chroma. The redoximorphic feature known as gley is a result of greatly reduced soil conditions, which result in a characteristic grayish, bluish or greenish soil color. The term mottling is used to describe areas of contrasting color within a soil matrix. The soil matrix is the portion of the soil layer that has the predominant color. Soils that have brightly colored mottles and a low matrix chroma are indicative of a fluctuating water table.

Hydric soil indicators include: organic content of greater than 50% by volume, sulfidic material or "rotten egg" smell, and/or presence of redoximorphic features and dark soil matrix, as determined by the use of a Munsell Soil Color Chart. This chart establishes the chroma, value and hue of soils based on comparison with color chips. Mineral hydric soils usually have a matrix chroma of 2 or less in mottled soils, or a matrix chroma of 1 or less in unmottled soils.

Hydrogeomorphic (HGM) Wetland Classification

A method of assessing wetlands using the physical, chemical, and biological functions of wetlands. It is based on the relationship of geomorphic setting, water source, and hydrodynamics. (Brinson, 1993)

Hydrophytic Vegetation

"Plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content." (National Resource Council, 1995)

The U.S. Fish and Wildlife Service, in the *National List of Plant Species that Occur in Wetlands*, has established five basic groups of vegetation based on their frequency of occurrence in wetlands. These categories, referred to as the "wetland indicator status," are as follows: obligate wetland plants (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and obligate upland (UPL).

Local Wetlands Inventory (LWI)

An inventory of all wetlands greater than 0.5 acres in size within a local jurisdiction using the standards and procedures of OAR 141-86-110 through 141-86-240.

In 1989, the Oregon State legislature authorized DSL to develop a statewide wetlands inventory for planning and regulatory purposes. Accordingly, DSL established Local Wetlands Inventory (LWI) standards and guidelines under ORS 196.674. An approved LWI replaces the National Wetlands Inventory maps and is incorporated into the statewide wetlands inventory.

An LWI is conducted using color or color infrared aerial photographs taken within 5 years of the inventory initiation and at a minimum scale of 1 inch = 400 feet (1" = 400'). Wetlands are located using the on-site option where access to property is allowed or off-site where access is denied. Wetlands can be mapped off-site by using information such as topographic and National Wetlands Inventory maps, aerial photographs, and soils surveys.

The approximate location of wetlands is placed on a parcel-based map. The parcel-based map allows the property owner, the local jurisdiction, and DSL, to know which tax lots may contain wetlands.

The maps and documents produced for the LWI are intended for planning purposes only. Mapped wetland boundaries are accurate to within 25 feet; however, there may be unmapped wetlands that are subject to regulation. In all cases, actual field conditions determine wetland boundaries.

Palustrine Wetlands (e.g. PEM)

"All nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens and all such wetlands that occur in tidal areas where salinity is less than 0.5%. This includes areas traditionally called swamps, marshes, fens, as well as shallow, permanent or intermittent water bodies called ponds." (Cowardin et. al. 1979)

- **Palustrine Unconsolidated Bottom (PUB)**

A wetland or deepwater habitat with at least 25% cover of particles smaller than stones, and a vegetative cover less than 30%.

- **Palustrine Emergent Wetland (PEM)**

These wetlands have rooted herbaceous vegetation that stand erect above the water or ground surface.

- **Palustrine Scrub-shrub Wetland (PSS)**

Wetlands dominated by shrubs and tree saplings that are less than 20 feet high.

- **Palustrine Forested Wetland (PFO)**

Wetlands dominated by trees that are greater than 20 feet high.

Probable Wetland (PW)

An area noted during the course of LWI field work that appears to meet, or does meet, wetland criteria but is less than one half acre in size; or is small and of undetermined size, and is mapped as a point rather than a polygon on the LWI maps

Riparian Area

A "riparian area" is defined as the area adjacent to a river, lake, or stream, consisting of the area of transition from an aquatic ecosystem to a terrestrial ecosystem. A "riparian corridor" is a Goal 5 resource that includes the water areas, fish habitat, adjacent riparian areas, and wetlands within the riparian boundary.

Riverine System

"The riverine system includes all wetlands and deepwater habitats contained within a channel." (Cowardin, et. al. 1979)

Waters of the State

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. Natural waterways are defined as: waterways created naturally by geological and hydrological processes, and waterways that would be natural but for human-caused disturbances (e.g. channelized or culverted streams, impounded waters, partially drained wetlands or ponds created in wetlands). (ORS 196.800-196.990, 1995)

Water Resource

"An intermittent or perennial stream, pond, river, lake including their adjacent wetlands." (PHS, 1998)

Wetland

"Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." (Federal Register 1982).

Wetland Assessment

Determining the relative quality of a wetland by assessing its functions and conditions. The methodology generally used to determine the relative quality of wetlands for purposes of an LWI is the *Oregon Freshwater Wetland Assessment Methodology.* (Roth, et. al. 1996)

Wetland Function

"A characteristic action or behavior associated with a wetland that contributes to a larger ecological condition such as wildlife habitat, water quality and/or flood control." (Roth, et. al. 1996)

Wetland Hydrology

"Permanent or periodic inundation or prolonged soil saturation sufficient to create anaerobic conditions in the upper soil profile." (COE, 1987)

Wetland hydrology is related to duration of saturation, frequency of saturation, and critical depth of saturation. The Regional Supplement defines wetland hydrology as 14 or more consecutive days of flooding or ponding, or a water table 12 inches or less below the soil surface, during the growing season at a minimum frequency of 5 years in 10.

Wetland Mosaic

A complex of several wetlands that are interspersed between areas of non-wetland each less than one half acre in size, making them difficult to map.

Wetlands Regulation

Wetlands in Oregon are regulated by the Department of State Lands (DSL) under the Removal-Fill Law (ORS 196.800-196.990) and by the U.S. Army Corps of Engineers (Corps) through Section 404 of the Clean Water Act.

3.0 PROJECT METHODOLOGY

3.1 Public Involvement

Prior to beginning the inventory field work, selected landowners (i.e. those suspected of having wetlands or stream on their property) were mailed notices describing the project and asking permission to enter their property. Right of access was granted to PHS by landowner permission only. The properties of those not responding were not accessed. Access information was collected in a database and then transferred to a base map for use in the field.

The City of Springfield held one open house on July 8, 2009, for citizens to discuss the inventory.

3.2 Local Wetlands Inventory Methodology

3.2.1 Routine Off-site Determination

Prior to beginning field work, off-site mapping was conducted to determine the approximate location of wetland boundaries based on available information. This information included the USGS Eugene East topographic quadrangles (USGS, 1986), Natural Resources Conservation Service (NRCS) Soil Survey for Lane County (SCS, 1981), the *National Wetlands Inventory* maps (USFWS, July 1994), and true color aerial photographs (1"=400'). If access was allowed, the wetland boundaries were verified in the field (see Section 3.2.2). If access was not granted, the boundaries were based on the mapping conducted in the office (non-field verified), or on the observation of wetland boundaries from adjacent roads, right-of-ways, or properties, if possible (field verified). Some of the larger wetlands were only partially field verified, denoting access to a portion, but not all, of the wetland.

3.2.2 Routine On-site Determination

Where property access permission was granted, on-site observation and inspection of soils, vegetation, and hydrology were made using the required methodology outlined in the Regional Supplement. Soil pits were excavated up to a depth of approximately 20-inches in selected locations. The soil profiles were examined for hydric soils and wetland hydrology field indicators.

A visual percent-cover estimate of the dominant species of the plant community for a maximum 30-foot radius was conducted at each sampling location. Sampling locations were chosen to document a change in the wetland boundary and a particular plant community. Data was recorded in the field and transferred to computer-generated wetland delineation data sheets (Appendix C).

Field work for the inventory was conducted between July and October 2009. No wetland boundaries were staked or flagged in the field as part of this LWI.

3.3 Wetland Quality Assessment

3.3.1 The Oregon *Freshwater Wetland Assessment Methodology*

The quality of wetlands in the study area was assessed using the *Oregon Freshwater Wetland Assessment Methodology* (OFWAM) (Roth et al. 1996). OFWAM was developed by an interagency committee to assess the relative quality of wetlands primarily for planning and educational purposes. OFWAM does not assign a numeric ranking to the wetlands, but does determine the relative quality of six functions for each of the wetlands. A description of each of the functions to be assessed by DSL is included below. The three conditions; *Sensitivity to Impact, Enhancement Potential,* and *Aesthetic Quality,* are part of the OFWAM but are not required as part of the inventory process for DSL. Though these conditions are not discussed in this report, results can be found in the OFWAM appendices.

Wetland Functions

Wildlife habitat: Evaluates the habitat diversity for species usually associated with wetlands, without emphasizing one particular species. Wetlands assessed by OFWAM can provide diverse habitat for wildlife, habitat for some wildlife species, or does not provide habitat.

Fish habitat: Evaluates how a wetland contributes to fish habitat in streams, ponds or lakes associated with a wetland. The questions are suitable for both warmwater and coldwater fish, and no particular species is emphasized. Wetlands assessed by OFWAM can have fish habitat function intact, impacted or degraded, or lost or not present. Only wetlands with water bodies with the potential for fish habitat were assessed for this function; ponds used solely for irrigation purposes were not assessed for fish habitat.

Water Quality: Evaluates the potential of a wetland to reduce the impacts of excess nutrients in storm water runoff on downstream waters. A wetland's water quality function can be assessed by OFWAM as intact, impacted or degraded, or lost or not present.

Hydrologic control: Evaluates the effectiveness of a wetland to reduce downstream flood peaks and store floodwaters. A wetland's hydrologic control functions can be assessed by OFWAM as intact, impacted or degraded, or lost or not present.

Education: Evaluates the suitability of a wetland to provide educational opportunity and act as an "outdoor classroom." A wetland assessed by OFWAM can have educational uses, have the potential to provide, or not be appropriate for educational uses.

Recreation: Evaluates the suitability of a wetland and associated watercourses for non-powered boating, fishing, and similar recreational activities. A wetland assessed by OFWAM can provide, have the potential to provide, or not provide recreational opportunities

3.3.2 Wetlands of Special Interest for Protection

The first filter in OFWAM is to determine whether the wetland is in a management plan, is protected by regulatory rules or statutes, or is uncommon in Oregon. Ten questions are answered for each wetland and a "yes" answer to any of the questions puts the wetland into the "special interest for protection" category. If the wetland falls into this category, it is noted on the wetland characterization sheet.

3.3.3 Field Methodology

During the process of determining the boundaries for the LWI, data were also collected for the process of determining its relative quality. Data collected for this purpose are explained in the *Wetland Characterization* section of OFWAM. Data collected in the field included the Cowardin classes, the types of disturbance (if any) in the wetland area, the hydrology of the wetland area (e.g. the location of constrictions), the presence of fish, large woody debris, the degree of vegetative cover, and other information necessary to complete the assessment of the wetland in the office.

If the wetland determination was off-site, the OFWAM section and wetland characterization was based on review of the aerial photographs and knowledge of other similar or adjacent wetlands.

3.3.4 Office Assessment

Subsequent to the field work, the data collected for each wetland were used to answer questions for each function and condition. Additional information on the wetlands, the landscape and the general area were gathered in the office. The answers within each function and condition section of the methodology were entered into a computer spreadsheet, which automatically displays the results of the assessment methodology.

4.0 CARTOGRAPHY

Color aerial photographs were obtained for use in the field. These photos dated March 2008 are true color, with a scale of approximately 1 inch = 400 feet. Preliminary wetland boundaries and data point locations were drawn directly onto field maps at the time of assessment. A second map of the study area containing tax lots within the project area where permission to enter was granted or denied was also used. The wetland boundaries were transferred into a digital format and inserted into a computer-based map derived from the County's GIS base.

Additional layers added to the GIS base map included streams and stream names, wetland codes, and sample point locations.

Each wetland was assigned a code beginning with the three letter hydrologic basin designation followed by a unique number between 1 and 7 (the total number of wetland polygons mapped in the inventory. Wetland sub-units that were hydrologically connected and/or in close proximity were assessed as a single wetland unit if they were similar in character. Small potential wetlands that could not be accurately assessed, or known wetlands of less than one-half acre in size, are labeled on the maps with a designation of "PW" ("probable wetland"). No data was collected for the PWs. The final digital maps include the location of all streams and wetlands (those assessed with OFWAM and PW's). They also include the location of sample points, legend, north arrow, scale, and a DSL required disclaimer.

5.0 STUDY AREA CHARACTERISTICS AND EXISTING INVENTORY INFORMATION

5.1 Topography

Regional topography in the Glenwood area slopes to the north and east towards the Willamette River and south towards Interstate 5. The topography ranges from 420 to 440 feet National Geodetic Vertical Datum (NGVD) along the Willamette River, up to 500 and 600 feet in the forested hills east of I-5 in the southern portion of the study area.

5.2 Hydrology

5.2.1 Hydrologic Features of the Glenwood Study Area

Major hydrologic features of the project area include the Willamette River and the Glenwood Slough. The Willamette River defines the eastern and northern limits of the study area; however, the riparian area along the west and south side of the river within the study area was evaluated.

The Willamette River is ODFW-designated essential salmonid habitat. The river flows in a northerly direction. The riparian corridor along the Willamette River is relatively narrow throughout the Glenwood area. The riparian area is either developed close to the edge of the river, includes a narrow fringe of forested area, or is mowed grasses and forbs.

The Glenwood Slough is located within the west-central portion of the study area. It meanders through the study area as it flows west, converging with the Willamette River just north and west of the inventory boundary. Glenwood Slough is not ODFW-designated essential salmonid habitat. The slough has been altered over the decades due to development and several culverts connect this system together.

5.2.2 Hydrologic Basin Designation

As mapped watershed boundaries are not available at the scale necessary for the LWI, the study area was subdivided into two hydrologic basins: Glenwood Slough (GS) and the Willamette River (WR). The determination of boundaries for the two hydrologic basins was based in large part upon topographic maps, field observations, and aerial photographs. The basins and their sizes are listed in Table 1.

Table 1: Hydrologic Basins and Acreage for the Glenwood LWI

Hydrologic Basin	Basin Area (acres)
Glenwood Slough (GS)	432
Willamette River (WR)	245
Total Project Acreage	**677**

5.3 Soils

Table 2 lists the soils that have been mapped by the Natural Resources Conservation Service (NRCS; formerly the Soil Conservation Service) within the study area. Figure 2 shows the mapped location of these soils.

Table 2. Soils Mapped Within the Glenwood LWI Study Area

Soil Series	Soil Name	Slopes	Classification	Drainage Class	Hydric?
11C, 11D	Bellpine silty clay loam	3-12%, 12-20%	Xeric Haplohumults	Well drained	No
22	Camas gravelly sandy loam	-	Fluventic Haploxerolls	Excessively drained	Yes
23	Camas-Urban land complex	-	Fluventic Haploxerolls	Excessively drained	No
26	Chehalis silty clay loam	-	Ultic Haploxerolls	Well drained	No
27	Chehalis-Urban land complex	-	Ultic Haploxerolls	Well drained	No
30	Cloquato-Urban land complex	-	Ultic Haploxerolls	Well drained	No
43C, 43E	Dixonville-Philomath-Hazelair complex	3-35%	mixed	Well drained	Yes
95	Newberg fine sandy loam	-	Fluventic Haploxerolls	Somewhat excessively drained	No
97	Newberg-Urban land complex	-	Fluventic Haploxerolls	Somewhat excessively drained	No
99H	Ochrepts and Umbrepts	-	N/A	Well drained	No
102C	Panther silty clay loam	2-12%	Typic Haplaquolls	Poorly drained	Yes
105A	Pengra silt loam	1-4%	Typic Haploxerolls	Somewhat poorly drained	Yes
106A	Pengra-Urban land complex	-	Typic Haploxerolls	Somewhat poorly drained	Yes
108F	Philomath cobbly silty clay	12-45%	Vertic Haploxerolls	Well Drained	No
114	Riverwash	-	N/A	Excessively drained to poorly drained	Yes
127C	Urban land-Hazelair-Dixonville complex	3-12%	mixed	Moderately well drained	Yes

5.4 Vegetation

5.4.1 Vegetation Overview

Many portions of the Glenwood area have been developed. Existing land use includes residential, industrial, and commercial. The undeveloped areas include some relatively native forested areas south of Newman Street and north of I-5, and west of Franklin Boulevard.

The forested areas are typically dominated by black cottonwood (*Populus trichocarpa*), big leaf maple (*Acer macrophyllum*), Oregon ash (*Fraxinus latifolia*), and Douglas fir (*Pseudotsuga menziesii*).

5.4.2 Local Vegetation Communities

Generalized plant communities encountered within the Glenwood area include upland mixed coniferous/deciduous forest; developed-urban; wetland; and riparian. Each of these communities is described below. Wetland communities are further distinguished as freshwater (palustrine emergent, palustrine scrub-shrub, palustrine forested, and unconsolidated bottom) following the Cowardin classification system developed for the US Fish and Wildlife Service (Cowardin, et. al., 1979).

Upland Mixed Coniferous-Deciduous Forest

The conifer species include Douglas fir and western red cedar (*Thuja plicata*). These species may be codominant with deciduous hardwoods such as red alder (*Alnus rubra*), bigleaf maple, and Oregon ash. The understory is comprised of Himalayan blackberry (*Rubus discolor*), Pacific madrone (*Arbutus menziesii*), white alder (*Alnus rhombifolia*), red elderberry (*Sambucus racemosa*), tall Oregon grape (*Mahonia aquifolium*), vine maple (*Acer circinatum*), salal (*Gaultheria shallon*), cascara (*Rhamnus purshiana*), and sword fern *(Polystichum munitum*).

Developed-Urban

In general, plant communities in the Glenwood study area have been influenced by human activities for much of the last century. Land use within the study area includes single-family residential homes, industrial, and commercial.

Residences, parking areas, and roadways all represent unvegetated or landscaped areas. Vegetation is often of horticultural origin or weedy in these areas. The fringes of these developed areas may have been subject to disturbance as well as they often regenerate as Himalayan blackberry thickets.

Wetlands

Wetland areas are generally transitional between upland or riparian areas and truly aquatic sites with permanently open water. Open water may or may not be present, in which case the wetland can occupy a position where the groundwater table comes close to the surface for an extended period at some time during the growing season.

Palustrine forested wetlands (PFO) in the area are dominated primarily by an overstory of black cottonwood and Oregon ash. Palustrine scrub/shrub (PSS) wetlands typically include several species of willows (*Salix* spp.), black cottonwood, red osier dogwood (*Cornus stolonifera*), nootka rose (*Rosa nutkana*), clustered rose (*Rosa pisocarpa*), and Douglas spirea (*Spiraea douglasii*). Palustrine emergent wetlands (PEM) are dominated by herbaceous species such as soft rush (*Juncus effusus*), slough sedge (*Carex obnupta*), tall fescue (*Festuca arundinacea*), water parsley *(Oenanthe sarmentosa*), reed canarygrass (*Phalaris arundinacea*), meadow foxtail *(Alopecurus pratensis*), and creeping buttercup (*Ranunculus repens*).

Riparian

Riparian forests are similar to the upland mixed coniferous/deciduous forest, though species preferring wetter sites may be more common. Black cottonwood and Oregon ash dominate in the wetter areas, with Douglas fir, western red cedar, and bigleaf maple more common in the drier riparian zones.

5.4.3 Wetland and Upland Indicator Species

Species lists of commonly encountered plants, along with their status as indicators of wetland conditions, have been prepared for all regions of the country by the USFWS (1988). The status of a particular plant, as identified on Table 3, is the probability of that plant occurring in a wetland.

Table 3. Wetland Indicator Codes and Status

Indicator Code	Status
OBL	Obligate wetland. Estimated to occur almost exclusively in wetlands (>99%)
FACW	Facultative wetland. Estimated to occur 67-99% of the time in wetlands.
FAC	Facultative. Occur equally in wetlands and non-wetlands (34-66%).
FACU	Facultative upland. Usually occur in non-wetlands (67-99%).
UPL	Obligate upland. Estimated to occur almost exclusively in non-wetlands (>99%). If a species is not assigned to one of the four groups described above it is assumed to be obligate upland.
NI	Has not yet received a wetland indicator status, but is probably not obligate upland.

Many plants are found in transitional areas between wetlands and uplands. These areas are usually characterized by flat to gradually sloping terrain where the species composition may not reflect true wetland boundaries. In such areas, a species with a status of FACU may extend into the wetland areas, just as FACW species may also be present in upland areas.

6.0 LWI DISCUSSION AND CONCLUSIONS

6.1 U.S. Fish & Wildlife Service National Wetland Inventory

The U.S. Fish and Wildlife Service, as part of the National Wetlands Inventory (NWI) program, have mapped wetland in the study area (Figure 3). The NWI maps are generated primarily on the basis of interpretation of relatively small-scale color infrared aerial photographs (e.g., scale of 1:58,000) with limited "ground truthing" conducted to confirm the interpretations.

In general, wetlands as shown on the NWI are represented by wetlands mapped in the inventory. There are however, some differences between the mapped size and shape; in most cases the NWI shows the major stream systems and some smaller wetlands located along sections of rivers and streams within the study area.

The NWI map only identified the Willamette River and the Glenwood Slough (GS-3). The remaining wetlands identified during the inventory were not identified on the NWI. Though development since the time of NWI mapping has no doubt contributed to differences between NWI designated wetlands and those identified for the LWI, the primary reason for differences can be attributed to the opportunity for ground truthing provided by the LWI.

6.2 Local Wetlands Inventory Results

6.2.1 Wetland Acreage and Distribution

A total of seven wetland resource areas were identified during the LWI, with a total area of approximately 13.27 acres. Some are small, isolated features, while others are larger and composed of several hydrologically connected, yet separate polygons. There was a wetland fringe along portions of the Willamette River; however, it was not mapped because it was discontinuous and typically located below the ordinary high water line of the river.

The project area was divided into two hydrologic basins, which includes the Glenwood Slough and the Willamette River. The hydrologic basins are identified on Sheet 2 in Appendix A.

Typically, wetlands less than 0.50 acre in size are identified as probable wetlands. However, GS-1 (0.47 acre) was previously delineated and was greater than 0.50 acre. Some portions, however, were filled as a result of an I-5 bridge and trail project. GS-1 is considered a "Locally Significant Wetland" because it is hydrologically connected to the Willamette River, a water quality limited resource. Therefore, GS-1 was included in the inventory as a wetland and an OFWAM was completed for this system. GS-1 was not combined with GS-2 or GS-3 because it is functionally different than these systems.

Table 4 summarizes wetland acreage by hydrologic basin. It should be noted that only a small portion of each basin is located within the limits of the inventory boundary. Table 4 is useful in identifying where wetlands are concentrated within the study area.

Table 4. Wetland Areas Within Each Basin of the Glenwood LWI Study Area

Watershed	Area (acres)	Wetland (acres)	Percent of study area that is wetland
Glenwood Slough	432	12.76	3
Willamette River	245	0.51	<1
Total Project Acreage	**677**	**13.27**	**0.2**

6.2.2 Wetland Classification

Each wetland was classified according to the Cowardin system. At 55%, palustrine forested wetlands (PFO) is the dominant type within the study area, totaling 7.35 acres. Unconsolidated bottom (PUB) wetlands, were the next most common at 25%: totaling only 3.24 acres within the study area. The Palustrine emergent (PEM) wetlands were the third most common at 13%, totaling 1.73 acres. Scrub shrub (PSS) wetlands were the least common at 7% with a total of 0.95 acres.

Tables 5 and 6 summarize the wetland classifications for the LWI study area. Table 5 is a break down of wetland type by wetland class. Table 6 includes the acreage of Cowardin classification for each wetland.

Table 5. Types of Wetlands within the Glenwood LWI Study Area

Wetland Classification	Area (acres)	Percent of Wetlands
Palustrine forested (PFO)	7.35	55%
Palustrine scrub-shrub (PSS)	0.95	7%
Palustrine emergent (PEM)	1.73	13%
Palustrine Unconsolidated bottom (PUB)	3.24	25%
Total	**13.27**	**100%**

Table 6. Cowardin Classification of all Wetlands Identified in the Glenwood LWI

Wetland Code	USFWS Wetland Classification				Total Acreage
	PFO	PSS	PEM	PUB	
GS-1		0.47			0.47
GS-2	2.53				2.53
GS-3		0.48		3.24	3.72
GS-4			0.87		0.87
GS-5	4.31				4.31
GS-6			0.86		0.86
WR-6	0.51				0.51
TOTAL	**7.35**	**0.95**	**1.73**	**3.24**	**13.27**

7.0 Oregon Freshwater Wetland Assessment Methodology Results

7.1 Wetland Quality Assessment

An assessment of the quality for each of the Goal 5 wetlands identified through the inventory was conducted using the *Oregon Freshwater Assessment Methodology* (OFWAM) (Roth et al, April 1996). OFWAM assesses 6 functions and 2 conditions, as described in Section 3.3.1. Appendix D contains OFWAM data and results for the seven wetlands assessed by the methodology. As wetlands of less than one-half acre in size can be designated as a probable wetland (PW), only those wetlands greater than one-half acre in size were assessed using OFWAM.

Although OFWAM provides qualitative information on the relative value of wetlands and does not have a numerical ranking, numbers were assigned to the assessment criteria to easily compare the results. A number 1 was assigned to wetlands receiving the highest function or condition result (e.g. intact, diverse), a number 3 was assigned to the wetlands receiving the lowest result (lost or not present, not appropriate), and a number 2 was assigned to the results which do not fit the other criteria (potential, impacted or degraded). This system is summarized in Table 7.

Table 7. Key to the Oregon Freshwater Wetland Assessment Methodology Numerical Ranking

Wildlife Habitat	1. *Wetland provides diverse wildlife habitat* 2. *Wetland provides habitat for some wildlife species* 3. *Wetland does not provide wildlife habitat*
Fish Habitat	1. *Wetland's fish habitat function is intact* 2. *Wetland's fish habitat function is impacted or degraded* 3. *Wetland's fish habitat function is lost or not present*
Water Quality	1. *Wetland's water-quality function is intact* 2. *Wetland's water-quality function is impacted or degraded* 3. *Wetland's water-quality function is lost or not present*
Hydrologic Control	1. *Wetland's hydrologic control function is intact* 2. *Wetland's hydrologic control function is impacted or degraded* 3. *Wetland's hydrologic control function is lost or not present*
Education	1. Wetland has educational uses 2. Wetland has potential for educational use 3. Wetland is not appropriate for educational use
Recreation	1. Wetland provides recreational opportunities 2. Wetland has the potential to provide recreational activities 3. Wetland is not appropriate for or does not provide recreational opportunities

Table 8 shows the results of the quality assessment conducted on each wetland greater than one-half acre in size. Some functions or conditions were not applicable to certain wetlands. For instance, wetlands GS-4, GS-5, GS-6 and WR-7 were not evaluated for fish habitat, because it is not present in these systems. Wetlands that may qualify as a Locally Significant Wetland due to education or recreation use must also be evaluated for those social functions (values). These conditions only apply if the site is publicly owned and use by a school or organization is documented. None of the wetland meet these criteria.

Table 8. Oregon Freshwater Wetland Assessment Methodology Numerical Ranking Results for the Glenwood LWI

Wetland Code	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Size (acres)
GS-1	2	2	2	2	0.47
GS-2	2	2	2	2	2.53
GS-3	2	2	2	2	3.72
GS-4	2	NA	2	2	0.87
GS-5	2	NA	2	3	4.31
GS-6	2	NA	2	2	0.86
WR-7	2	NA	2	2	0.51

All of the assessed wetlands provided some wildlife habitat. None of the wetlands have intact fish habitat; though three of them have impacted or degraded fish habitat (due to lack of shade, instream structures, or channel modifications), while four of them were not assessed for habitat.

The water quality function for all wetlands is impacted or degraded. There are no wetlands with intact water quality function due in part to the natural, groundwater sources of hydrology within assessed wetlands, and the fact that there are no upstream or adjacent water quality limited waterbodies. Groundwater (or precipitation) fed wetlands typically do not require water quality enhancement.

Hydrologic control was assessed as impacted or degraded for all wetlands except, GS-5, which is lost or not present. Conditions that affect this function include the lack of natural floodplain, unrestricted outflow, or downstream open space. Though these features may be natural and or desirable, they decrease the ability of a wetland to perform this function.

7.2 Wetlands of Special Interest for Protection

Each wetland was assessed according to the ten questions in this section of OFWAM. These questions are regarding the presence of Federal or State listed threatened, endangered or sensitive species, existing management plans, conservation plans, protected mitigation areas, critical habitat, wetland reserve areas and the presence of uncommon wetland plant communities in Oregon. This can determine if the wetland is protected by regulatory rules or statutes, or is uncommon in Oregon.

A review of the Oregon Natural Heritage Program data base by the Lane Council of Governments identified the following species may occur in the study area: 1) Chinook salmon (Federal: Listed Threatened) & its critical habitat - the Willamette River; 2) Painted Turtle (State: sensitive/critical); 3) Tall bugbane (State: critical); 4) Cusick's mallow (Heritage: not rare, apparently secure). Other than the presence of listed fish species in the Willamette River, there was no evidence of the painted turtle, tall bugbane, or Cusick's mallow found in the inventoried wetlands.

Since the ten questions were answered "no" for all of the wetlands identified in the inventory; there are no wetlands of special interest for protection in the City of Glenwood.

8.0 SIGNIFICANT WETLANDS DETERMINATION

8.1 Goal 5 Locally Significant Wetlands Criteria

On September 1, 1996, the LCDC adopted a revised Statewide Planning Goal 5. The goal requires local jurisdictions to inventory the natural resources covered under the goal, determine the significance of these resources, and develop plans to achieve the goal. In other words, local jurisdictions must adopt land use ordinances regulating development in and around significant areas.

Local jurisdictions determining significant wetlands must use the criteria adopted by the Oregon Department of State Lands (ORS 197.279(3)(b)). These criteria identify *Locally Significant Wetlands.* The significance criteria are divided into three sections, as shown in Table 9.

Table 9. Criteria for Determining Goal 5 Locally Significant Wetlands

Exclusions:	**A wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".**
1	Is this wetland artificially created entirely from upland and:
a.	created for the purpose of controlling, storing, or maintaining storm water
b.	is used for active surface mining or as a log pond
c.	is a ditch without a free and open connection to natural waters of the state
d.	is less than 1 acre and created unintentionally from irrigation or construction
e.	created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard
2	Is the wetland or portion of the wetland contaminated by hazardous substances, materials or wastes as per the conditions of ORS 141-86-350 1(b)
***Mandatory Locally Significant Wetland Criteria*:**	**A wetland is locally significant if "Yes" is the answer to any of the criteria below.**
1	Does the wetland provide *diverse wildlife habitat*?
2	Is the wetland's *fish habitat function intact*?
3	Is the wetland's *water quality function intact*?
4	Is the wetland's *hydrologic control function intact*?
5	Is the wetland less than 1/4 mile from a water body listed by DEQ as a water quality limited water body (303(d) list) and is the wetland's *water quality function intact, or impacted or degraded*?
6	Does the wetland contain a rare plant community?
7	Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?
8	Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids and is the wetland's *fish habitat function intact, or impacted or degraded*?
***Optional Locally Significant Wetland Criteria*:**	**Local governments may identify a wetland as significant if "Yes" is the answer to the criteria below**
1	Does the wetland represent a locally unique native plant community and provides *diverse wildlife habitat or habitat for some species* or has a *intact, or impacted or degraded fish habitat function* or has a *intact, or impacted or degraded water quality function* or has a *intact, or impacted or degraded hydrologic control function.*
2	Is the wetland publicly owned and used by a school or organization and does the wetland provide *educational uses*?

The committee that created the Goal 5 significance criteria determined that even relatively small wetlands might provide an important (or major) function in their particular landscape position. For example, a small wetland in an urban area may provide habitat for a rare, threatened, or endangered species. However, as stated above, only wetlands greater than one-half acre were assessed in OFWAM.

8.2 Applying Significant Wetland Criteria to the LWI Study Area

8.2.1 Goal 5 Significant Wetlands

The Locally Significant Wetlands criteria were applied to all wetlands. Based on the criteria, 6 of the 7 wetlands (86%) were determined to be locally significant. These wetlands met the criteria for significance because they meet one or more of the mandatory criteria such as containing fish habitat and having a direct hydrologic connection to the Willamette River. Although it is relatively valuable for some functions, Wetland GS-6 did not satisfy the significant wetlands criteria because it does not contain fish habitat or have a direct connection to the river. The specific criteria of significance associated with each of these six wetlands can be found in Appendix E.

9.0 RIPARIAN CORRIDORS

A "riparian area" is defined as the area adjacent to a river, lake, or stream, consisting of the area of transition from an aquatic ecosystem to a terrestrial ecosystem. A "riparian corridor" is a Goal 5 resource that includes the water areas, fish habitat, adjacent riparian areas, and wetlands within the riparian boundary.

Glenwood has several perennial and intermittent streams, as well as the Willamette River that flows around the north and eastern portions of Glenwood. Each riparian reach has a right (R) and left (L) side, looking downstream. If the riparian information is different for the left and right sides, there are two forms, respectively. All the riparian data forms can be found in Appendix G.

The Goal 5 Administrative Rules require local governments to inventory and determine significant riparian corridors by following either the safe harbor process or the standard methodology. In the safe harbor approach, only fish-bearing water bodies must be inventoried whereas in the standard process, all water areas may be included and assessed for significance.

Using the safe harbor method, PHS applied the required Goal 5 setbacks of 50 feet for waterbodies less than 1,000 cubic feet per second (cfs) and 75 feet for waterbodies greater than 1,000 cfs to all fish bearing streams. The setbacks are required to be applied to the top of bank of the waterway resource or, when the riparian corridor includes all or portions of a significant wetland, the setback is to be applied to the upland edge of the wetland. However, since top of bank has not been surveyed for any of the streams or the Willamette River, the setback was applied to and measured from the City of Springfield's digitized storm drainage lines representing the approximate location of the resource.

As a standard method, PHS included all perennial streams in the riparian inventory within Glenwood using a methodology called the Urban Riparian Inventory and Assessment Guide (URIAG) (DSL 1998). This riparian assessment methodology was developed by PHS for DSL. A description of the methodology and the results of applying this methodology are included in the sections below.

The results of the methods are summarized below:

- Safe Harbor — Seventy-five (75) feet setback from the Willamette River and 50 feet from all other fish bearing waterbodies
- URIAG — Setback determined by the dominant tree species within the existing riparian area. One hundred and twenty (120) feet maximum setback for black cottonwood and Douglas fir, 75 feet for Oregon ash, and 20 feet for Sitka willow

9.1 Fish-Bearing Streams, Rivers and Lakes

Goal 5 also requires that fish habitat be included in the inventory. The definition of fish bearing includes waterbodies with both native and introduced species. As such, the determination of riparian corridors under Goal 5 was based on all fish-bearing waterbodies within Glenwood. Information on fish presence came from http://www.streamnet.org/ which is a database of the latest sampling conducted by the ODFW and other data sources.

A conversation on October 20, 2009, with Jeff Ziller in the Springfield office of ODFW, identified the Glenwood Slough likely had some fish species such as carp and mosquito fish since it is a perennial feature. An unnamed tributary to the Willamette River, located southwest of the project area, west of Augusta Street, flows under the I-5 bridge where it converges with R-GS-2. This unnamed tributary has been sampled for fish and identified the presence of cutthroat trout. Mr. Ziller said it was likely that these fish could enter any of the other hydrologically connected perennial stream systems such as R-GS-1 and the Glenwood Slough. According to maps provided by the City, it appears the unnamed tributary is culverted under the I-5 bridge where it converges with an existing culverted section of R-GS-2.

The Willamette River and Glenwood Slough are the water features assessed for riparian protection under Goal 5. Some headwater drainages to Glenwood Slough were not included as there are several long culverts separating short sections of remaining stream habitat. The following summarizes the fish species sampled or known to occur in the Willamette River; therefore, potentially occurring in other stream systems within the UGB.

Table 10. Fish Species Known to Inhabit One or More of Glenwood's Rivers and Streams

Native Fish		Introduced Fish	
Chinook salmon	Peamouth	Black Bullhead	Pumpkinseed
Coho salmon	Redside shiner	Black Crappie	Smallmouth bass
Chiselmouth	Speckled dace	Bluegill	Yellow bullhead
Cutthroat trout	Sandroller	Brown Bullhead	Yellow perch
Dace species	Sculpin species	Carp	Mosquitofish
Lamprey species	Steelhead	Largemouth bass	
Largescale sucker	Sucker species		
Mountain whitefish	Threespine stickleback		
Northern pike minnow			

9.2 Safe Harbor Method

Goal 5 contains a "safe harbor" option for local jurisdictions allowing them to replace portions of the standard Goal 5 process with processes set forth in the rules for each of the listed Goal 5 resources. The safe harbor process for riparian corridors allows jurisdictions to impose a 50-foot setback from all fish-bearing lakes and streams and a 75-foot setback from all streams with average annual stream flow greater than 1,000 cubic feet per second (cfs) [OAR 660-023-0090(5)].

In the Glenwood area, only the Willamette River was determined to have an average annual flow of greater than 1,000 cfs. As such, this riparian area is 75 feet and all of the remaining fish-bearing streams are 50 feet.

9.3 Standard Method - Urban Riparian Inventory and Assessment Guide

9.3.1 Methodology

The *Urban Riparian Inventory and Assessment Guide* (URIAG) was one method used to determine the riparian width on all fish-bearing streams and waterways. With URIAG, riparian corridors are broken into "reaches" with similar characteristics, such as vegetation patterns or land use. It relies on a combination of available knowledge, field observations, and best professional judgment.

The methodology is comprised of a riparian inventory and a riparian assessment. The riparian inventory involves gathering and assimilating information pertinent to the project site, developing a base map, and completing the riparian characterization form.

The riparian characterization form includes a determination of the riparian width. The riparian width is measured from the edge of the water resource, typically either the top of a streambank or the outer edge of a wetland, lake, or pond. Riparian areas on both sides of a stream channel are assigned separate widths. The potential width of the riparian area is based on the dominant riparian tree species within 100 feet of the water resource. The height of the dominant tree species at maturity is used as a distance to define the outer riparian boundary. The height of the tree species at maturity is called the site potential tree height (SPTH).

SPTH is used as the potential riparian width because it represents a distance in which a tree can still affect the water resource (e.g. provide shade, provide organic material). Where riparian area trees have been eliminated by land-use activities, such as development, farming, or by natural causes, such as land slides, it may be necessary to extrapolate tree heights from a reference site. Although the riparian widths never exceed the PTH, they can be less than the PTH if impervious surfaces or permanent structures (e.g. buildings or roads) are inventoried within the SPTH.

As with the LWI, a part of the riparian inventory process is determining the quality of the riparian area. In URIAG this is accomplished by reviewing functions including water quality, flood management, thermal regulation, and wildlife habitat. The riparian assessment was completed by answering a series of questions for each function. Because certain elements or characteristics of a riparian area are more critical to its function, the answers are "weighted".

The points are then totaled for each reach and for each function. The results indicate whether the functional integrity of each riparian area is high, medium, or low. Fifteen riparian reaches were assessed.

9.3.2 Results

Goal 5 does not establish specific criteria for determining significant riparian areas. Instead, local jurisdictions establish their own criteria based on the quantity and quality of the resource. Using URIAG, six tree species were determined to be the dominant native trees within riparian areas of the UGB. The majority of riparian vegetation was dominated by Oregon ash, with black cottonwood predominantly along the Willamette River and black cottonwood, Douglas fir, and Sitka willow being equally dominant in sections along Glenwood Slough. The trees have the following potential tree heights.

Table 11. Potential tree heights of the four tree species determining riparian widths in the Glenwood Area UGB.

Common Name	Botanical Name	Potential Tree Height/ Riparian Corridor Widths (feet)
Oregon ash	*Fraxinus latifolia*	75
Black cottonwood	*Populus trichocarpa*	120
Douglas fir	*Pseudotsuga menziesii*	120
Big leaf maple	*Acer macrophyllum*	90
Pacific Willow	*Salix lasiandra*	35
Sitka Willow	*Salix sitchensis*	20

The quality of the riparian corridors using URIAG indicate that most (60%) of inventoried riparian areas rate "high" for water quality functioning, because they filter the runoff from nearby land. In the flood management category, three (15%) of the riparian areas rated "high," nine (45%) rated "medium" and eight (40%) rated low. All but one of the riparian areas are rated "high" for thermal regulation due to good vegetation cover. High quality wildlife is characterized by multi-layered vegetation near the streams, and only four (20%) of Glenwood's riparian areas are vegetated to this extent. The remaining sixteen (80%) rated moderate for wildlife providing multi-layered vegetation; however, their proximity to development precluded them from rating "high". Table 12 summarizes the results of the riparian functional assessment. A copy of the riparian datasheets can be found in Appendix G.

Table 12. Summary of Glenwood's Riparian Functional Assessments

Riparian Code	Water Quality	Flood Management	Thermal Regulation	Wildlife Habitat
R-GS-1	H	H	H	M
R-GS-2 Left bank	M	M	H	M
R-GS-2 Right bank	M	M	H	M
R-GS-3 Left bank	H	L	H	M
R-GS-3 Right bank	H	L	H	H
R-GS-4 Left bank	H	M	H	H
R-GS-4 Right bank	H	M	H	H

Riparian Code	Water Quality	Flood Management	Thermal Regulation	Wildlife Habitat
R-GS-5 Left bank	M	M	H	M
R-GS-5 Right bank	H	M	H	M
R-GS-6	H	L	H	M
R-GS-7 Left bank	H	L	H	M
R-GS-7 Right bank	H	L	H	M
R-GS-8	M	L	H	M
R-GS-9	M	M	H	M
R-WR-1 Left bank	H	L	H	M
R-WR-2 Left bank	M	L	M	M
R-WR-3 Left bank	H	M	H	M
R-WR-4 Left bank	H	H	H	M
R-WR-5 Left bank	M	H	H	M
R-WR-6 Left bank	M	M	H	H

H = High M = Medium L = Low

9.4 Conclusions

PHS used two methods to determine riparian widths. Table 13 includes the range of widths available to Glenwood for Goal 5 protection.

Table 13. The ranges of widths available from the two methods applied to all fish bearing waterbodies in Glenwood

Method	Range of riparian corridor widths
Safe Harbor	75 feet (Willamette River) - 50 feet (all other fish bearing waterbodies)
Urban Riparian Inventory and Assessment Guide (URIAG)	20 feet (Sitka willow) - 120 feet (cottonwoods and Douglas fir)

Based on our review of potential riparian widths within Glenwood's more urbanized center, the majority of the riparian areas are already developed: houses, industrial development, and impervious surfaces encompass much of the riparian corridors. It is likely that designating up to 120-foot wide riparian corridors (i.e. using the URIAG widths) within already developed areas will not result in additional riparian protection. The riparian areas were mapped using GIS; however, a more accurate method of identifying the actual limits of the riparian areas is by delineating the ordinary high water mark of each water body. Delineating ordinary high water is a method required by DSL and the Corps of Engineers whenever a delineation report is submitted by a property owner or developer seeking a jurisdictional determination from each agency.

10.0 STAFF QUALIFICATIONS

John van Staveren: President; Senior Scientist;
Professional Wetland Scientist

Project Role: Project Manager
Project Responsibility: Contract negotiations, monthly billing
Public presentations
Quality control
Regulatory agency coordination

As President, Mr. van Staveren directs Pacific Habitat Services' environmental projects throughout the Pacific Northwest. He has conducted over 1,000 wetland delineations, 30 Local Wetland Inventories and riparian inventories, designed and implemented dozens of freshwater and estuarine wetland mitigation plans, provided expert witness testimony, and testified at numerous public hearings. John served on three state-appointed Technical Advisory

Committees concerning wetland policy in the State of Oregon. He is principal author of the *Urban Riparian Inventory and Assessment Guide* prepared for the Oregon Department of State Lands and *Freshwater Wetland Restoration* a chapter in *The Art and Science of Ecological Restoration in Cascadia. The Science and Practice of Ecological Restoration (Island Press, 2006).*

Shawn Eisner

Project Role: Wetland Scientist
Project Responsibility: Wetland and riparian inventory field work and assessment
Quality control and editing
Report writing
Data input

Shawn provides specialized support pertaining to wetland delineations, determinations, and monitoring; stream and natural resource assessments and environmental permit processing. He conducts field work and data collection for Local Wetland Inventories and is involved in report preparation and wetland/riparian assessments. He has played an integral role in the Molalla, Bandon, North Plains, Corvallis, Depoe Bay, and Eugene LWIs.

Michele Eccleston

Project Role: Wetland Scientist
Project Responsibility: Wetland and riparian inventory field work and assessment
Report writing

Michele has delineated numerous wetlands and prepared wetland mitigation plans. She has conducted several LWI and riparian inventories throughout Oregon in cities such as Bandon, Depoe Bay, Corvallis, and Eugene. She conducts field work and data collection for Local Wetland Inventories and is involved in report preparation.

Jane Le Blanc

Project Role:	Technical Editor
Project Responsibility:	Graphics
	Report editing, formatting and layout
	Data input

Jane is a technical editor and provides permitting support for PHS. Her duties include formatting and editing wetland reports, proposals, and letters as well as data input.

Jill Ory

Project Role:	GIS analyst and Cartographer
Project Responsibility:	Mapping
	GIS database preparation

Jill's experience is in Geographic Information Systems (GIS) analysis and Water Resources Analysis. Her specialties include Geodatabase development and management, mobile GIS, and data presentation. Her roles in this project include the creation of GIS data from field collected and attribute data, and mapping of results.

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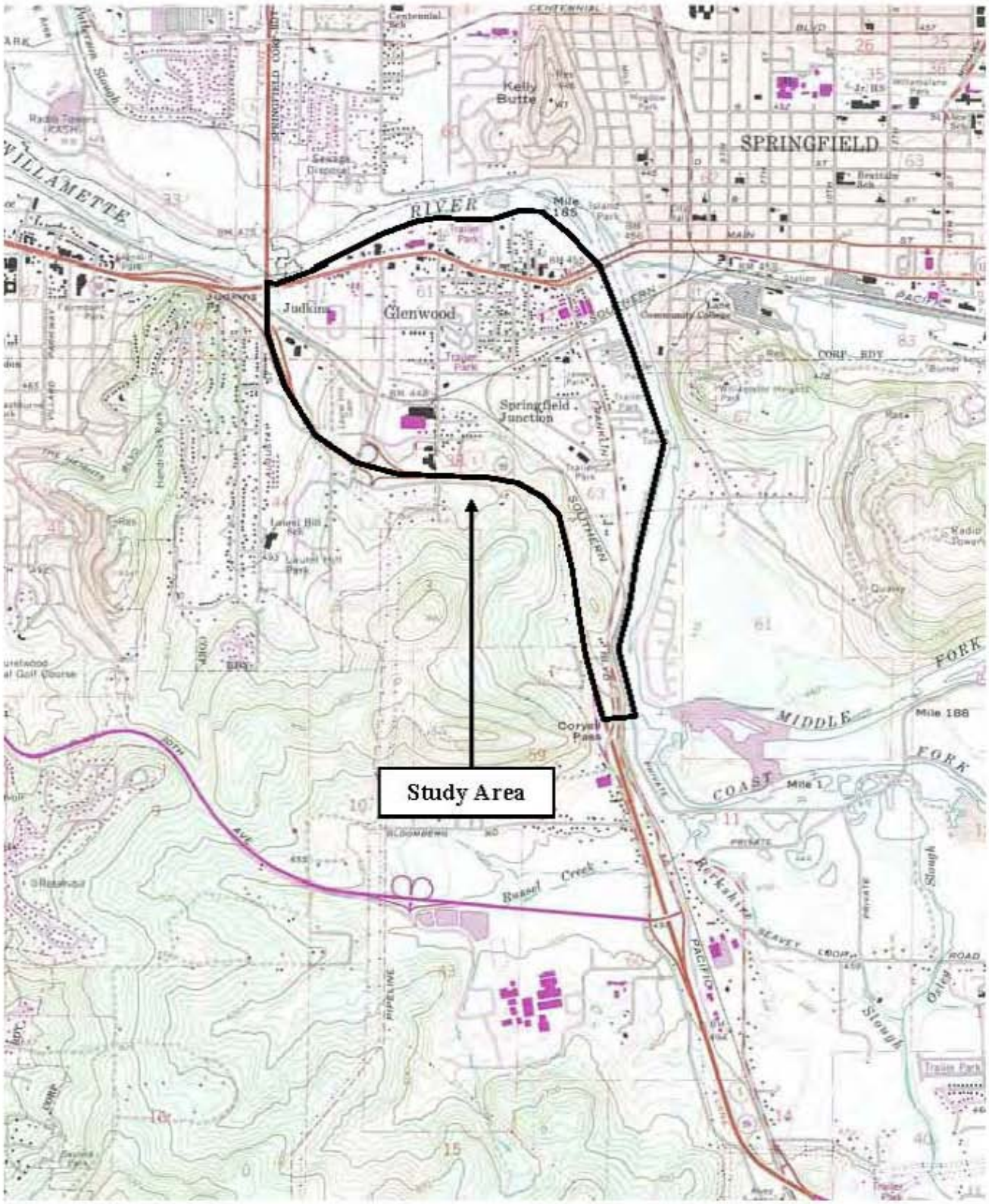
U.S.F.W.S. *National Wetlands Inventory* 7.5-minute quadrangle map, 1994, Springfield, OR, 1:58,000

U.S.G.S. *7.5-minute topographic quadrangle*, 1967, photorevised 1986 Provisional Edition. Springfield, OR, 1:24,000.

Appendix A

Figures and Sheets

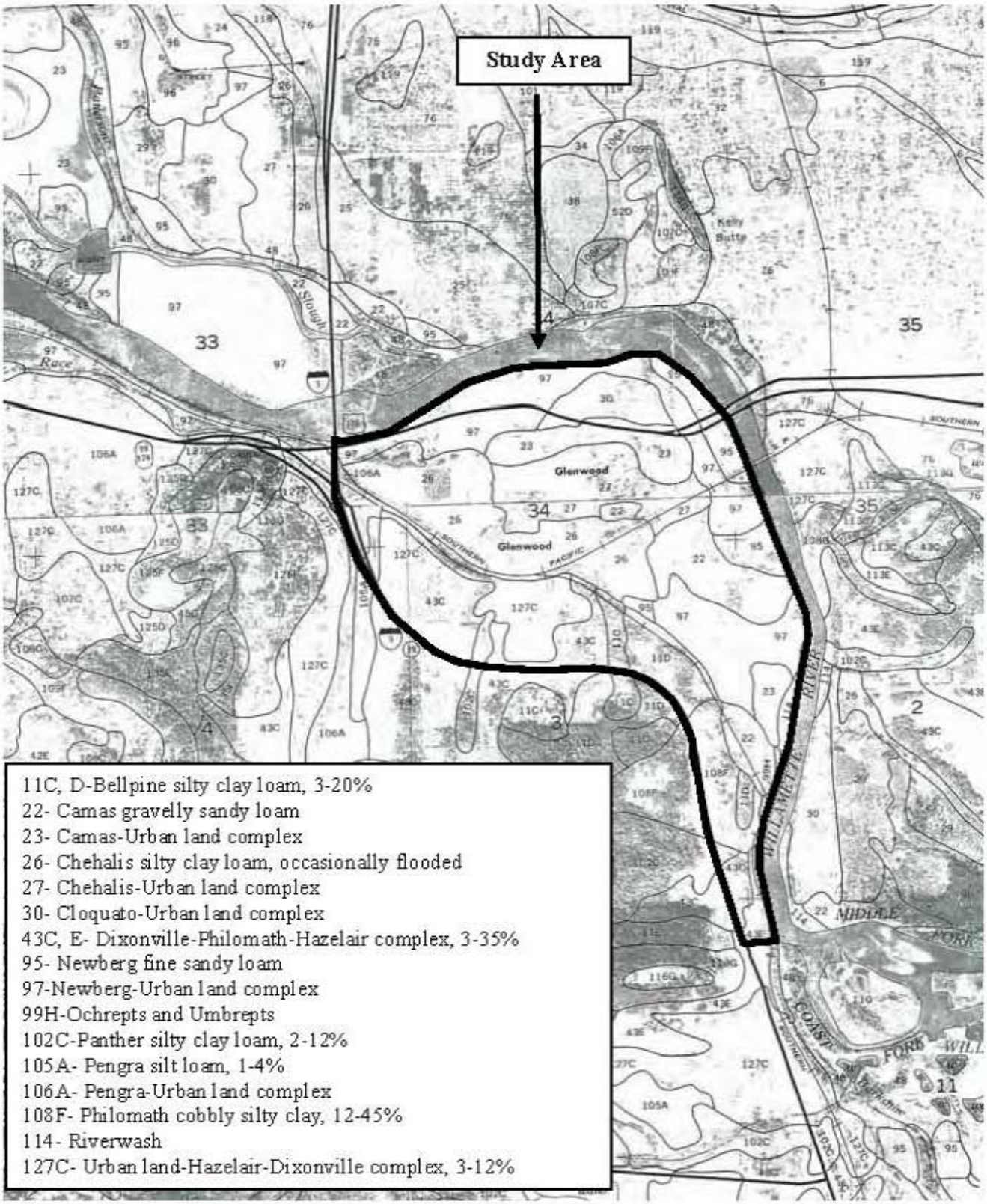


9/29/09

4495

Location and general topography for the Glenwood LWI project in Springfield, Oregon (USGS Eugene East, OR quadrangle, 1967, photorevised 1986).

FIGURE 1

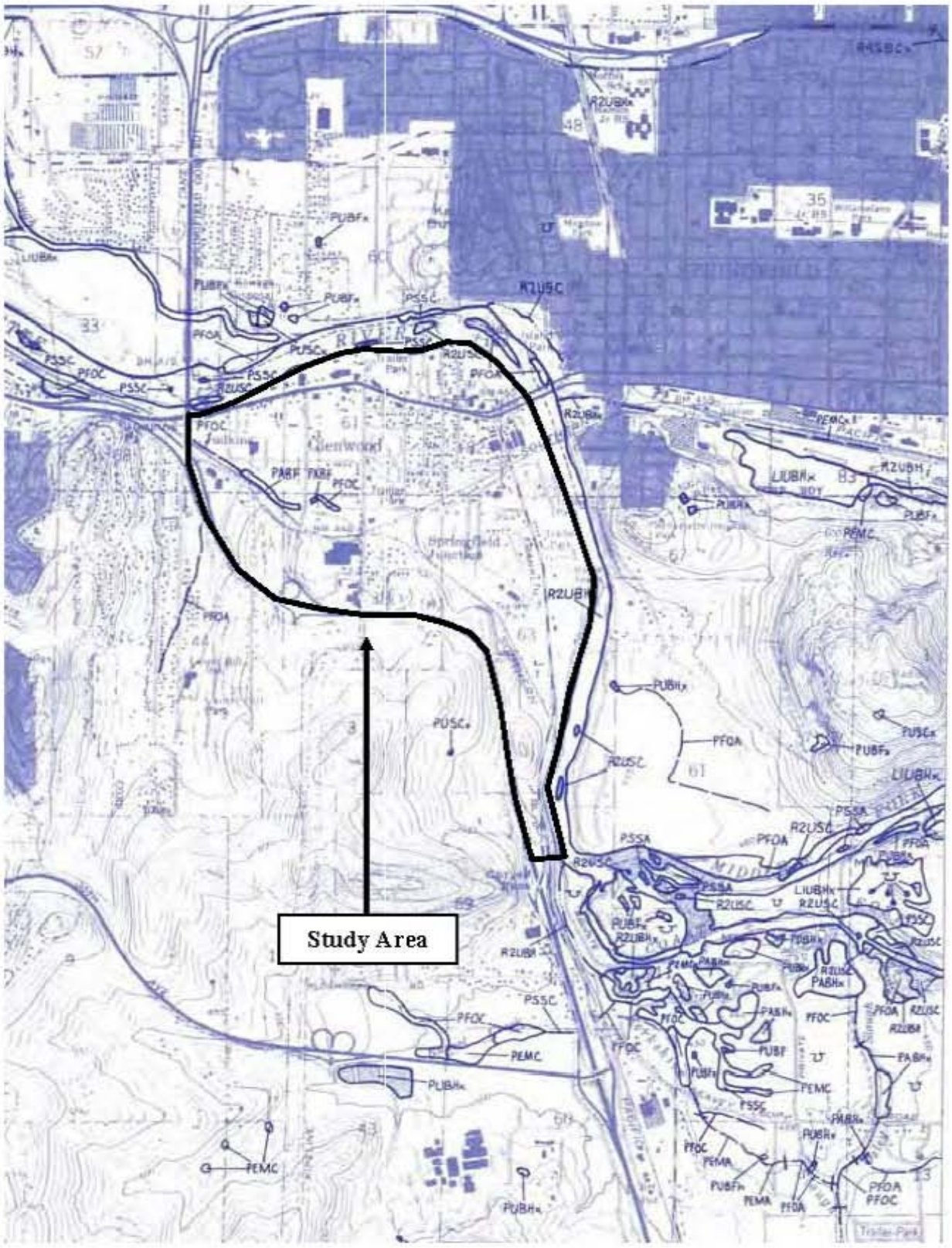


9/29/09

4495

Soil Series Map for the Glenwood LWI project in Springfield, Oregon (Natural Resources Conservation Service Soil Survey for Lane County, Oregon, sheets 76 and 91, 1981).

FIGURE 2



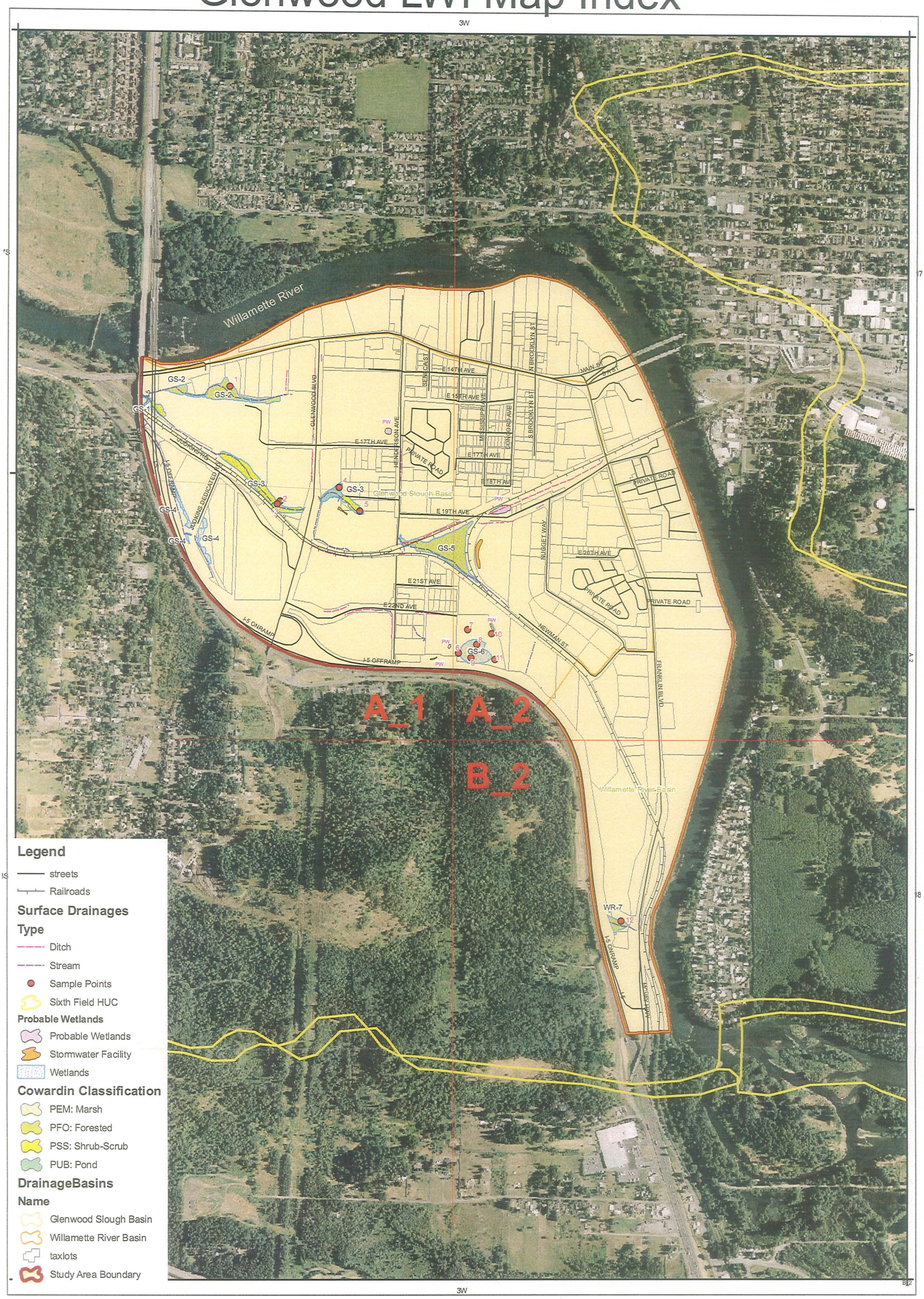
9/29/09

4495

National Wetlands Inventory for the Glenwood LWI project in Springfield, Oregon (USFWS Eugene East, OR quadrangle, 1994).

FIGURE 3

Glenwood LWI Map Index



Legend

- streets
- Railroads

Surface Drainages

Type

- Ditch
- Stream
- Sample Points
- Sixth Field HUC

Probable Wetlands

- Probable Wetlands
- Stormwater Facility
- Wetlands

Cowardin Classification

- PEM: Marsh
- PFO: Forested
- PSS: Shrub-Scrub
- PUB: Pond

DrainageBasins

Name

- Glenwood Slough Basin
- Willamette River Basin
- taxlots
- Study Area Boundary

Sheet 1 - Glenwood Area of Springfield Local Wetlands Inventory

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

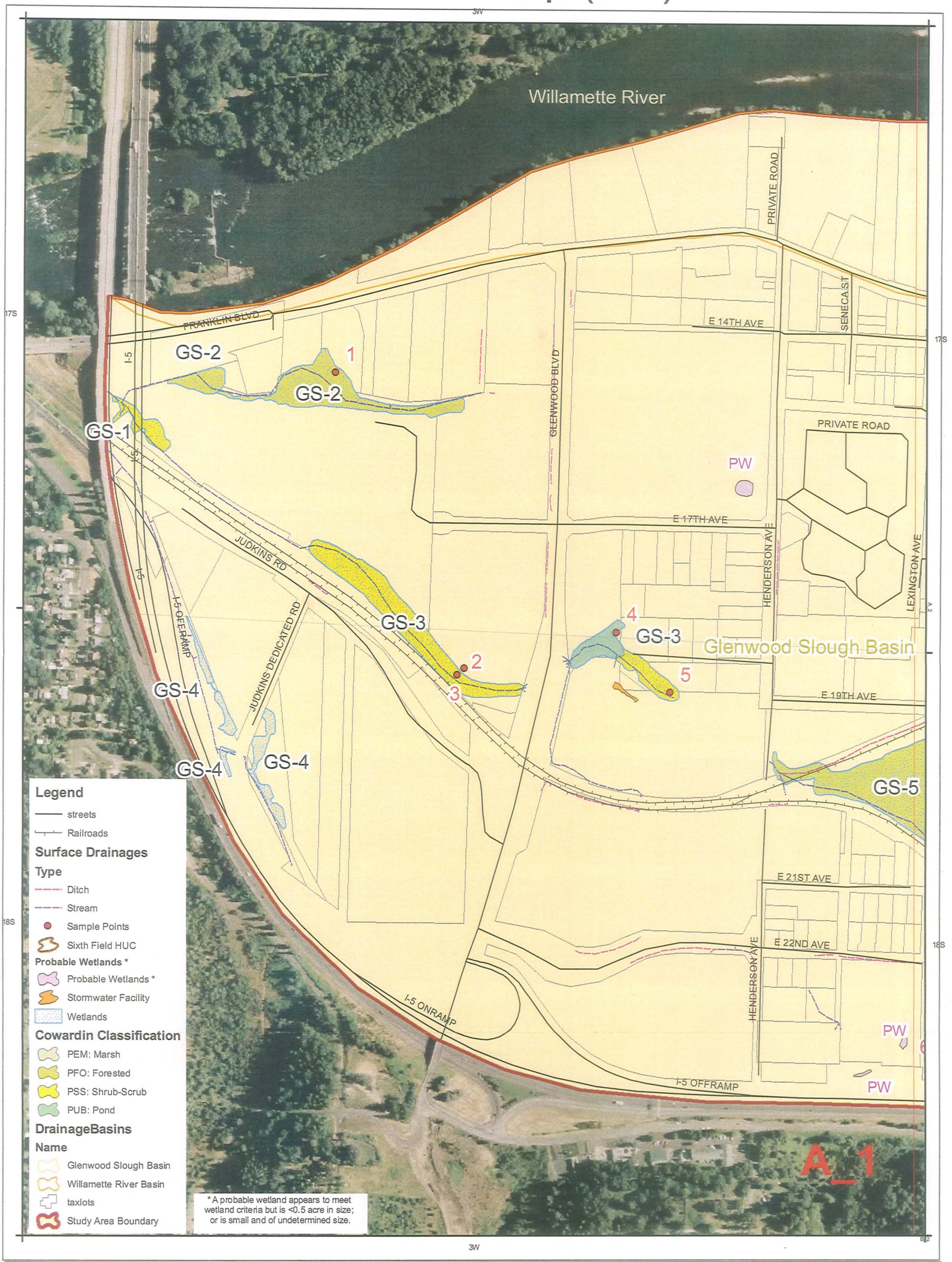
1 inch = 1,000 feet

N

0 250 500 1,000 Feet

Date of Final Map preparation: 2/4/10

Glenwood LWI Map (A-1)



Sheet 2 - Glenwood Area of Springfield Local Wetlands Inventory

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

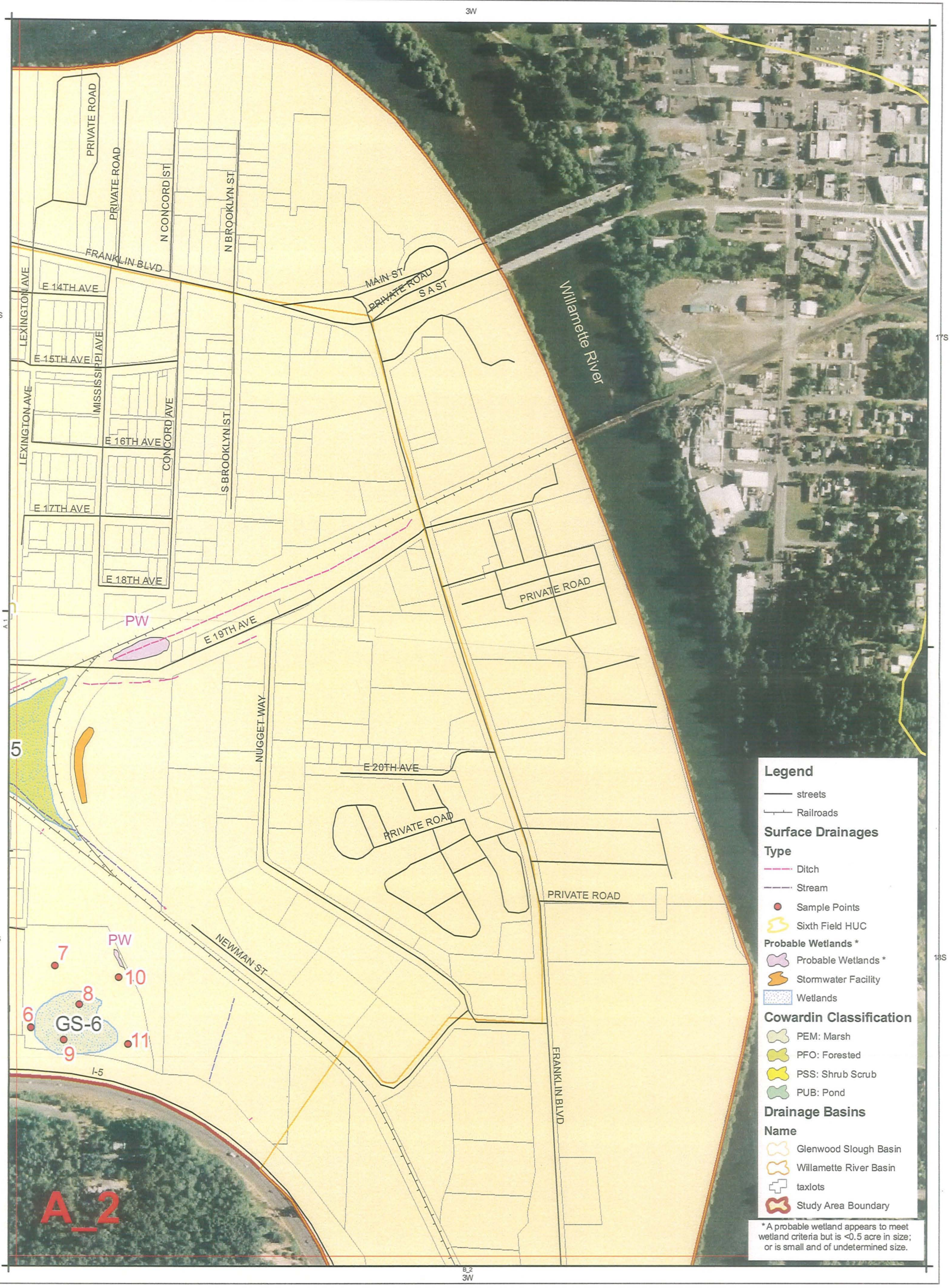
1 inch = 400 feet

N

0 250 500 1,000 Feet

Date of Final Map preparation: 2/4/10

Glenwood LWI Map (A-2)



Sheet 3 - Glenwood Area of Springfield Local Wetlands Inventory

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

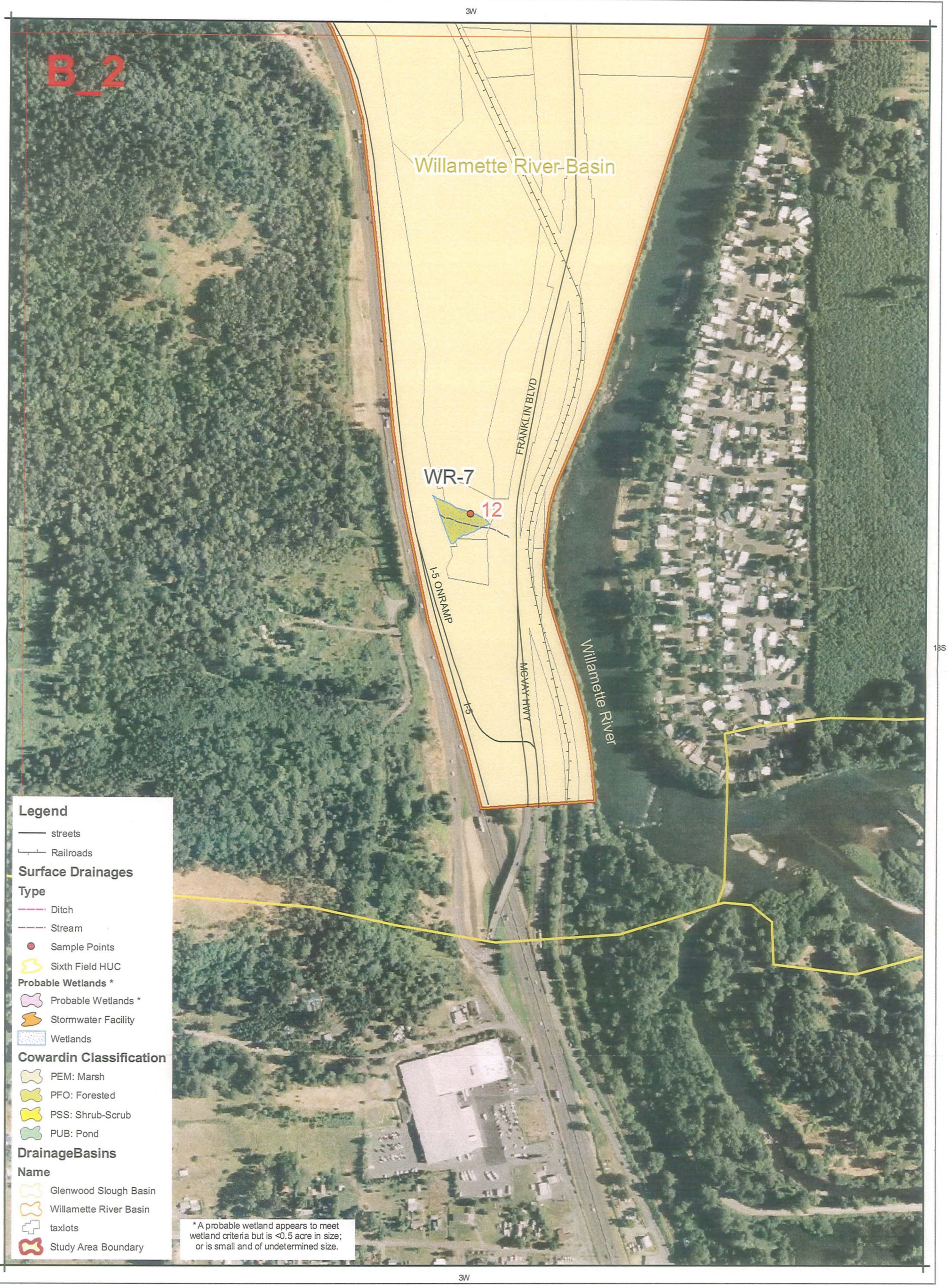
1 inch = 400 feet

N

0 250 500 1,000 Feet

Date of Final Map preparation: 2/4/10

Glenwood LWI Map (B-2)



Sheet 4 - Glenwood Area of Springfield Local Wetlands Inventory

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

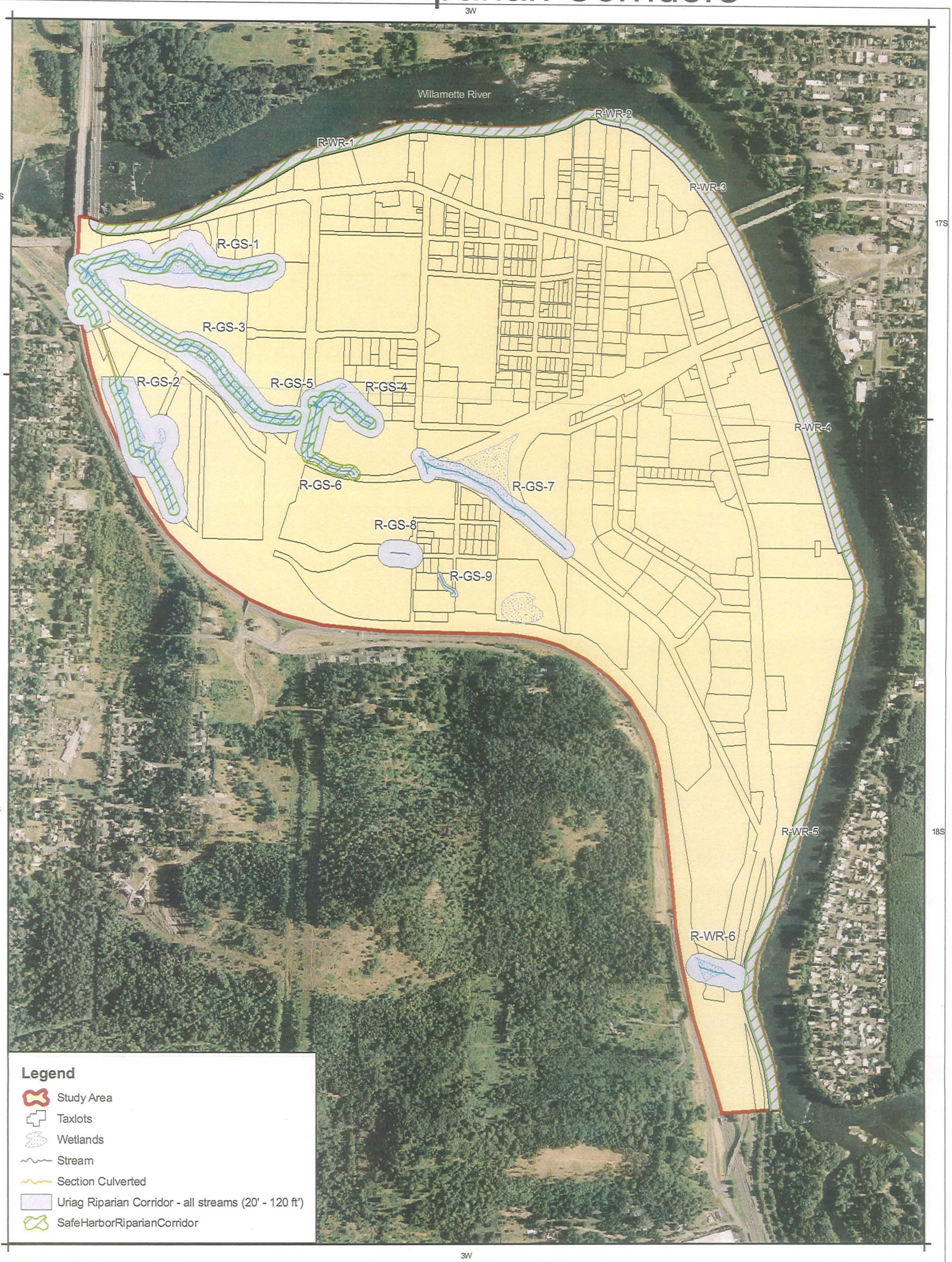
1 inch = 400 feet

N

0 250 500 1,000 Feet

Date of Final Map preparation: 2/4/10

Glenwood Riparian Corridors



Sheet 5 - Glenwood Area of Springfield Riparian Corridors

Information shown on this map is for planning purposes, represents the conditions that exist at the map date, and is subject to change. The setbacks are required to be applied to the top of bank of the waterway resource or, when the riparian corridor includes all or portions of a significant wetland, the setback is to be applied to the upland edge of the wetland. However, since top of bank has not been surveyed for any of the streams or the Willamette River, the setback was applied to and measured from the City of Springfield's digitized storm drainage lines representing the approximate location of the resource.

N

Date of Final Map preparation: 12/15/09

1 inch = 800 feet

0 0.125 0.25 0.5 Miles

Appendix B

Wetland Characterization Sheets

Wetland Characterization Sheet

Project Name: Glenwood Area of Springfield LWI

		Wetland Code:	**GS-1**
Date(s) of field work:	**10/7/2009**	Size (acres):	**0.47**
Data Sheet Numbers:	Previously delineated, no additional data collected	Cowardin Class(es):	**PSS**
Investigator(s):	**ME/SE**	HGM Class(es):	**S/F**

Location -- Legal:	**T 17S, R 3W, S 33**
Other:	**Under and east of the Interstate 5 Bridge just S of Franklin Blvd.**
Tax Lots:	**300**
Hydrologic basin:	**Glenwood Slough**
Soil -- Mapped series:	**Chehalis silty clay loam, Pengra-Urban land complex**
Hydrologic Source:	**Groundwater**

Dominant Wetland Vegetation

TREES / SHRUBS		VINES / HERBS	
Fraxinus latifolia	**Oregon Ash**	***Carex obnupta***	**Slough Sedge**
Populus trichocarpa	**Black Cottonwood**	***Ranunculus repens***	**Creeping Butter-Cup**
Cornus stolonifera	**Red-Osier Dogwood**		
Salix lasiandra	**Pacific Willow**		

Comments: **Locally Significant Wetland**

GS-1 was delineated in 2003 (WD2003-0273) as part of the ODOT's I-5 bridge project and Willamette River trail. The west portion was impacted by construction of the I-5 temporary detour bridge. GS-1 is bounded to the south by railroad tracks. Glenwood Slough flows through the wetland as do several ditches used to convey stormwater. The wetland is less than one-half acre; however, it was not identified as a PW because it is a significant wetland, hydrologically connected to the Willamette River, GS-2 and GS-3, and has received DSL wetland concurrence.

Adjacent upland species: *Populus trichocarpa, Alnus rubra, Fraxinus latifolia, Cornus stolonifera, Robinia pseudoacacia, Rubus discolor, Cytisus scoparius, Festuca arundinacae, Plantago lancelata, Lathyrus latifolius, Daucus carota, Cirsium arvense, Dipsacus sylvestris,* unidentified mixed grasses

COWARDIN CODES:	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
HGM CODES:	EFB = Estuarine Fringe Embayment	EFR = Estuarine Fringe Riverine	RFT = Riverine Flow Through
RI = River Impounding	LFH = Lacustrine Fringe Headwater	LFV = Lacustrine Fringe Valley	DB = Depressional Bog
DA- Depressional Alkaline	DO = Depressional Outflow	DCP = Depressional Closed Permanent	DCNP = Depressional Nonpermanent
	S = Slope	FL= Flats	

Wetland Characterization Sheet

Project Name: Glenwood Area of Springfield LWI

		Wetland Code:	GS-2
Date(s) of field work:	7/27/2009	Size (acres):	2.53
Data Sheet Numbers:	1	Cowardin Class(es):	PFO
Investigator(s):	ME/SE	HGM Class(es):	S/F

Location -- Legal:	T 17S, R 3 W, S 33; 34
Other:	East of the Interstate 5 Bridge, south of Franklin Blvd.
Tax Lots:	100, 200, 300; 700
Hydrologic basin:	Glenwood Slough
Soil -- Mapped series:	Chehalis silty clay loam
Hydrologic Source:	Groundwater

Dominant Wetland Vegetation

TREES / SHRUBS		VINES / HERBS	
Fraxinus latifolia	Oregon Ash	*Lapsana communis*	Nipplewort
Populus trichocarpa	Black Cottonwood	*Carex obnupta*	Slough Sedge
Cornus stolonifera	Red-Osier Dogwood	*Juncus effusus*	Soft Rush
Salix lasiandra	Pacific Willow	*Biden sp.*	Beggar's tick
Alnus rubra	Red Alder		
Rosa pisocarpa	Clustered Wild Rose		

Comments: **Locally Significant Wetland**

GS-2 is a PFO system located with a drainage that flows through the southern portion. Portions of the wetland have been previously delineated (WD's 03-0273, 00-0102, 98-0051). PHS did not have access to the easternmost and southern portions of GS-2 and boundaries were determined through off-site observations, previous delineations, and aerial photography.

Adjacent upland species: *Acer macrophyllum, Fraxinus latifolia, Populus trichocarpa, Rubus discolor, Symphoricarpos alba, Corylus cornuta, Cytisus scoparium, Holodiscus discolor, Hypericum perforatum, Festuca arundinacea* , mowed unidentified grasses

COWARDIN CODES:	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
HGM CODES:	EFB = Estuarine Fringe Embayment	EFR = Estuarine Fringe Riverine	RFT = Riverine Flow Through
RI = River Impounding	LFH = Lacustrine Fringe Headwater	LFV = Lacustrine Fringe Valley	DB = Depressional Bog
DA- Depressional Alkaline	DO = Depressional Outflow	DCP = Depressional Closed Permanent	DCNP = Depressional Nonpermanent
	S = Slope	FL= Flats	

Wetland Characterization Sheet

Project Name: Glenwood Area of Springfield LWI

		Wetland Code:	GS-3
Date(s) of field work:	8/12/2009	Size (acres):	3.72
Data Sheet Numbers:	2, 3, 4, 5	Cowardin Class(es):	PSS/PUB
Investigator(s):	ME/SE	HGM Class(es):	RI

Location -- Legal:	T 17S, R 3 W, S 34; T 18S, R 3W, S 3
Other:	East and west of Glenwood Boulevard, north of the railroad tracks
Tax Lots:	100, 101, 400, 2600, 2800; 300, 500
Hydrologic basin:	Glenwood Slough
Soil -- Mapped series:	Chehalis silty clay loam
Hydrologic Source:	Groundwater

Dominant Wetland Vegetation

TREES / SHRUBS		VINES / HERBS	
Salix sitchensis	Sitka Willow	*Mentha arvensis*	Field Mint
Fraxinus latifolia	Oregon Ash	*Juncus effusus*	Soft Rush
Cornus stolonifera	Red-Osier Dogwood	*Carex leptopoda*	Short-Scale Sedge
		Bidens sp.	Beggar's tick

Comments: **Locally Significant Wetland**

GS-3 is an open water slough system surrounded by a narrow PSS fringe. This system is known as the Glenwood Slough and it flows west into GS-1 prior to being culverted and flowing into the Willamette River. GS-3 is bissected by Glenwood Blvd, but is still hydrologically connected by a culvert. The slough is a topographic bowl. Hydrologic sources include stormwater from adjacent impervious surfaces, in addition to groundwater and upslope surface water. A portion of GS-3 was previously delineated (WD96-0375).

Adjacent upland species: *Symphoricarpos albus, Rubus discolor, Cornus stolonifera, Rubus ursinus, Corylus cornuta, Fraxinus latifolia, Carex leptopoda, Dipsacus sylverstris, Tolmiea menziesii*

COWARDIN CODES:	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
HGM CODES:	EFB = Estuarine Fringe Embayment	EFR = Estuarine Fringe Riverine	RFT = Riverine Flow Through
RI = River Impounding	LFH = Lacustrine Fringe Headwater	LFV = Lacustrine Fringe Valley	DB = Depressional Bog
DA- Depressional Alkaline	DO = Depressional Outflow	DCP = Depressional Closed Permanent	DCNP = Depressional Nonpermanent
	S = Slope	FL= Flats	

Wetland Characterization Sheet

Project Name: Glenwood Area of Springfield LWI

		Wetland Code:	**GS-4**
Date(s) of field work:	**7/28/2009**	Size (acres):	**0.87**
Data Sheet Numbers:	Previously delineated, no additional data collected	Cowardin Class(es):	**PEM**
Investigator(s):	**ME/SE**	HGM Class(es):	**Slope**

Location -- Legal:	**T 17S, R 3W, S 33; T 18S, R 3W, S 3; 4**
Other:	**East and west of Judkins Dedicated Road, East of Interstate 5.**
Tax Lots:	**2001, 2003**
Hydrologic basin:	**Glenwood Slough**
Soil -- Mapped series:	**Dixonville-Philomath-Hazelair complex**
Hydrologic Source:	**Groundwater**

Dominant Wetland Vegetation

TREES / SHRUBS		VINES / HERBS	
Populus trichocarpa	**Black Cottonwood**	***Juncus effusus***	**Soft Rush**
		Carex stipata	**Sawbeak sedge**
		Mentha arvensis	**Wild mint**
		Bromus hordeaceus	**Soft brome**
		Holcus lanatus	**Common Velvet Grass**
		Plantago lanceolata	**English Plantain**
		Festuca arundinacea	**Tall Fescue**
		Poa sp.	**Bluegrass species**

Comments: **Locally Significant Wetland**

GS-4 is a series of small PEM wetlands located within the ODOT ROW and on private property. The wetlands were delineated in 2007 for the I-5 bridge project (WD08-0140). The wetlands are located at the bottom of a steep slope. Hydrology from the wetlands flow into a channel that drains to the northwest to the Willamette River. The wetlands located in the ODOT ROW are mowed and maintained.

Adjacent upland species: *Populus alba, Rubus discolor, Daucus carota, Cytisus scoparium, Vicia sp., Festuca arundinacea, Taraxacum officinale, Trifolium pratense*

COWARDIN CODES:	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
HGM CODES:	EFB = Estuarine Fringe Embayment	EFR = Estuarine Fringe Riverine	RFT = Riverine Flow Through
RI = River Impounding	LFH = Lacustrine Fringe Headwater	LFV = Lacustrine Fringe Valley	DB = Depressional Bog
DA- Depressional Alkaline	DO = Depressional Outflow	DCP = Depressional Closed Permanent	DCNP = Depressional Nonpermanent
	S = Slope	FL= Flats	

Wetland Characterization Sheet

Project Name: Glenwood Area of Springfield LWI

		Wetland Code:	GS-5
Date(s) of field work:	8/12/2009	Size (acres):	4.31
Data Sheet Numbers:	Offsite - No data collected	Cowardin Class(es):	PFO
Investigator(s):	ME/SE	HGM Class(es):	Slope

Location -- Legal:	T 18S, R 3W, S 3
Other:	South of E 19th Avenue, bounded by Union Pacific RR tracks
Tax Lots:	600
Hydrologic basin:	Glenwood Slough
Soil -- Mapped series:	Chehalis silty clay loam
Hydrologic Source:	Groundwater

Dominant Wetland Vegetation

TREES / SHRUBS		VINES / HERBS	
Populus trichocarpa	Black Cottonwood	*Juncus effusus*	Soft Rush
Salix lasiandra	Pacific Willow	*Carex obnupta*	Slough Sedge
Salix sitchensis	Sitka Willow	*Mentha arvense*	Wild mint
Cornus stolonifera	Red-Osier Dogwood	*Phalaris arundinacea*	Reed Canary Grass
		Oenanthe sarmentosa	Water-Parsley
		Solanum dolcamara	Deadly nightshade
		Ranunculus repens	Creeping Butter-Cup
		Equisetum arvense	Field Horsetail

Comments:

GS-5 is a PFO area bounded on all sides by railroad tracks. PHS was able to view the wetland from adjacent road ROWs and the Franz bakery property to the east. It is surrounded by adjacent commerical properties. There is a drainage located along the southern portion of the wetland. It flows northwest into a large culvert located within the ROW of Glenwood Boulevard that is believed to flow into GS-3/Glenwood Slough.

Adjacent upland species: *Acer macrophyllum, Psedotsuga mensiezii, Rubus discolor, Corylus cornuta, Carex leptopoda, Convolvulus sp., Hedera helix, Agrostis stolonifera, Symphoricarpos albus*

COWARDIN CODES:	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
HGM CODES:	EFB = Estuarine Fringe Embayment	EFR = Estuarine Fringe Riverine	RFT = Riverine Flow Through
RI = River Impounding	LFH = Lacustrine Fringe Headwater	LFV = Lacustrine Fringe Valley	DB = Depressional Bog
DA- Depressional Alkaline	DO = Depressional Outflow	DCP = Depressional Closed Permanent	DCNP = Depressional Nonpermanent
	S = Slope	FL= Flats	

Wetland Characterization Sheet

Project Name: Glenwood Area of Springfield LWI

		Wetland Code:	GS-6
Date(s) of field work:	7/28/2009	Size (acres):	0.86
Data Sheet Numbers:	6, 7, 8, 9, 10, 11	Cowardin Class(es):	PEM
Investigator(s):	ME/SE	HGM Class(es):	Flat

Location -- Legal:	T18S, R3W, S3
Other:	South of E 22nd Avenue, north of Interstate 5
Tax Lots:	101
Hydrologic basin:	Glenwood Slough
Soil -- Mapped series:	Urban land-Hazelair-Dixonville complex
Hydrologic Source:	Precipitation

Dominant Wetland Vegetation

TREES / SHRUBS		VINES / HERBS	
Populus trichocarpa	Black Cottonwood	*Juncus tenuis*	Slender Rush
Rosa nutkana	Nootka rose	*Agrostis tenuis*	Colonial Bentgrass
Salix sp.	Willow species	*Madia sativa*	Coast Tarweed
		Festuca arundinacea	Tall Fescue
		Cynosurus echinatus	Hedgehog grass
		Holcus lanatus	Common Velvet Grass
		Alopecurus pratensis	Meadow Foxtail
		Gnaphalium palustre	Lowland Cudweed
		Lythrum hyssopifolia	Hyssop Loosestrife
		Linum bienne	Narrow leafed flax

Comments:

GS-6 is a mosiac of 50% wetland and 50% upland located on undeveloped land north of I-5 at the top of a steep slope. It is relatively flat and appears to have been significantly disturbed in the past by scraping. Plant species include a mixture of upland and wetland species. Several areas had mottling and oxidized rhizospheres, despite the general lack of dark chroma soils. Deep tire ruts bare evidence of seasonally wet conditions.

Adjacent upland species: *Rhus diversilobum, Crataegus monogyna, Rubus discolor, Festuca arundinacea, Daucus carota, Hypericum perforatum, Cirsium vulgare, Chrysanthemum leucanthum, Centaurea pratensis*

COWARDIN CODES:	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
HGM CODES:	EFB = Estuarine Fringe Embayment	EFR = Estuarine Fringe Riverine	RFT = Riverine Flow Through
RI = River Impounding	LFH = Lacustrine Fringe Headwater	LFV = Lacustrine Fringe Valley	DB = Depressional Bog
DA- Depressional Alkaline	DO = Depressional Outflow	DCP = Depressional Closed Permanent	DCNP = Depressional Nonpermanent
	S = Slope	FL= Flats	

Wetland Characterization Sheet

Project Name: Glenwood Area of Springfield LWI

		Wetland Code:	WR-7
Date(s) of field work:	9/15/2009	Size (acres):	0.51
Data Sheet Numbers:	12	Cowardin Class(es):	PFO
Investigator(s):	ME/SE	HGM Class(es):	Slope

Location -- Legal:	**T18S, R3W, S3**
Other:	**Bewteen Interstate 5 & Franklin Boulevard**
Tax Lots:	**800, 900**
Hydrologic basin:	**Willamette River**
Soil -- Mapped series:	**Dixonville-Philomath-Hazelair complex**
Hydrologic Source:	**Groundwater**

Dominant Wetland Vegetation

TREES / SHRUBS		VINES / HERBS	
Populus trichocarpa	**Black Cottonwood**	***Phalaris arundinacea***	**Reed Canary Grass**
Salix lasiandra	**Pacific Willow**	***Oenanthe sarmentosa***	**Water-Parsley**
Cornus stolonifera	**Red-Osier Dogwood**	***Urtica dioica***	**Stinging nettles**
		Carex obnupta	**Slough Sedge**
		Equisetum arvense	**Field Horsetail**

Comments: **Locally Significant Wetland**

WR-7 is located at the bottom of surrounding steep slopes. There is a narrow intermittent drainage channel that flows through the middle of the wetland. This drainage continues east through a long culvert under Franklin Boulevard and the railroad. WR-7 is located between I-5 and Franklin Boulevard with residential land uses to the north and south.

Adjacent upland species: *Acer macrophyllum, Rubus discolor, Festuca arundinacea, Daucus carota, Polystichum munitum, Dactylis glomerata*

COWARDIN CODES:	E2FO = estuarine forested	E2SS = estuarine scrub shrub	E2EM = estuarine emergent
PFO = palustrine forested	PSS = palustrine scrub-shrub	PEM = palustrine emergent	POW = palustrine open water
HGM CODES:	EFB = Estuarine Fringe Embayment	EFR = Estuarine Fringe Riverine	RFT = Riverine Flow Through
RI = River Impounding	LFH = Lacustrine Fringe Headwater	LFV = Lacustrine Fringe Valley	DB = Depressional Bog
DA- Depressional Alkaline	DO = Depressional Outflow	DCP = Depressional Closed Permanent	DCNP = Depressional Nonpermanent
	S = Slope	FL= Flats	

Appendix C

Wetland Determination Data Forms

PHS # 4495

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

Project/Site: Glenwood LWI | City/County: Springfield / Lane | Sampling Date: 7/27/2009

Applicant/Owner: Lane Council of Governments | State: OR | Sampling Point: 1

Investigator(s): ME/SE | Section, Township, Range: Sec 34, T17S, R3W

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): LRRA | Lat: 44.04435 | Long: -123.04743 | Datum: DD

Soil Map Unit Name: Chehalis silty clay loam | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks)

Are vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y

Are vegetation ___ Soil ___ or Hydrology ___ naturally problematic? If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is Sampled Area within a Wetland?**	Yes X No
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: 30)			
1 *Fraxinus latifolia*	40	X	FACW
2 *Populus trichocarpa*	25	X	FAC
3			
4			
	65	= Total Cover	
Sapling/Shrub Stratum (plot size:)			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb Stratum (plot size: 5)			
1 *Lapsana communis*	2	X	UPL
2 *Fraxinus latifolia*	5	X	FACW
3			
4			
5			
6			
7			
8			
	7	= Total Cover	
Woody Vine Stratum (plot size:)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	0
FACW species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
UPL Species		x 5 =	0
Column Totals	0 (A)		0 (B)

Prevalence Index =B/A = #DIV/0!

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- ___ Prevalence Index is ≤ 3.0[1]
- ___ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

Other vegetation: Juncus effusus, Carex obnupta, Bidens sp., Rosa pisocarpa.

SOIL

PHS # 4495 Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-17	10YR 3/1	95	7.5YR 3/4	5	C	M	Silt Loam	medium

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

	Histosol (A1)		Sandy Redox (S5)
	Histic Epipedon (A2)		Stripped Matrix (S6)
	Black Histic (A3)		Loamy Mucky Mineral (F1) (except MLRA 1)
	Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)
	Depleted Below Dark Surface (A11)		Depleted Matrix (F3)
	Thick Dark Surface (A12)	X	Redox Dark Surface (F6)
	Sandy Mucky Mineral (S1)		Depleted Dark Surface (F7)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

	2 cm Muck (A10)
	Red Parent Material (TF2)
	Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)			Secondary Indicators (2 or more required)	
	Surface Water (A1)		Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**	Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
	High Water Table (A2)			
	Saturation (A3)		Salt Crust (B11)	X Drainage Patterns (B10)
	Water Marks (B1)		Aquatic Invertebrates (B13)	Dry-Season Water Table (C2)
	Sediment Deposits (B2)		Hydrogen Sulfide Odor (C1)	Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Oxidized Rhizospheres along Living Roots (C3)	X Geomorphic Position (D2)
	Algal Mat or Crust (B4)		Presence of Reduced Iron (C4)	Shallow Aquitard (D3)
	Iron Deposits (B5)		Recent Iron Reduction in Plowed Soils (C6)	X Fac-Neutral Test (D5)
	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1) **(LRR A)**	Raised Ant Mounds (D6) **(LRR A)**
	Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)	Frost-Heave Hummocks (D7)
X	Sparsely Vegetated Concave Surface (B8)			

Field Observations:

Surface Water Present?	Yes		No X	Depth (inches):	
Water Table Present?	Yes		No X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes		No X	Depth (inches):	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

PHS # 4495

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

Project/Site: Glenwood LWI | City/County: Springfield / Lane | Sampling Date: 8/12/2009

Applicant/Owner: Lane Council of Governments | State: OR | Sampling Point: 2

Investigator(s): ME/SE | Section, Township, Range: Sec 34, T17S, R3W

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): LRRA | Lat: 44.04075 | Long: -123.04243 | Datum: DD

Soil Map Unit Name: Chehalis silty clay loam | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks)

Are vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y

Are vegetation ___ Soil ___ or Hydrology ___ naturally problematic? If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes		No	X	**Is Sampled Area within a Wetland?** Yes ___ No X
Hydric Soil Present?	Yes		No	X	
Wetland Hydrology Present?	Yes		No	X	

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: 30)			
1 *Corylus cornuta*	15	X	FACU
2			
3			
4			
	15	= Total Cover	
Sapling/Shrub Stratum (plot size: 5)			
1 *Symphoricarpos albus*	10		FACU
2 *Rubus discolor*	15	X	FACU
3 *Cornus stolonifera*	25	X	FACW
4 *Rubus ursinus*	5		FACU
5			
	55	= Total Cover	
Herb Stratum (plot size: 5)			
1 *Echinocystis lobata*	5	X	FACU
2 *Tolmiea menziesii*	2		FAC
3 *Dipsacus sylvestris*	5	X	FAC
4 *Fraxinus latifolia*	5	X	FACW
5			
6			
7			
8			
	17	= Total Cover	
Woody Vine Stratum (plot size:)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 15

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	0
FACW species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
UPL Species		x 5 =	0
Column Totals	0 (A)		0 (B)

Prevalence Index =B/A = #DIV/0!

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤ 3.0[1]

___ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

SOIL PHS # 4495 Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/2	100					Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _____ Histosol (A1)
- _____ Histic Epipedon (A2)
- _____ Black Histic (A3)
- _____ Hydrogen Sulfide (A4)
- _____ Depleted Below Dark Surface (A11)
- _____ Thick Dark Surface (A12)
- _____ Sandy Mucky Mineral (S1)
- _____ Sandy Gleyed Matrix (S4)
- _____ Sandy Redox (S5)
- _____ Stripped Matrix (S6)
- _____ Loamy Mucky Mineral (F1) (except MLRA 1)
- _____ Loamy Gleyed Matrix (F2)
- _____ Depleted Matrix (F3)
- _____ Redox Dark Surface (F6)
- _____ Depleted Dark Surface (F7)
- _____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- _____ 2 cm Muck (A10)
- _____ Red Parent Material (TF2)
- _____ Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- _____ Surface Water (A1)
- _____ High Water Table (A2)
- _____ Saturation (A3)
- _____ Water Marks (B1)
- _____ Sediment Deposits (B2)
- _____ Drift Deposits (B3)
- _____ Algal Mat or Crust (B4)
- _____ Iron Deposits (B5)
- _____ Surface Soil Cracks (B6)
- _____ Inundation Visible on Aerial Imagery (B7)
- _____ Sparsely Vegetated Concave Surface (B8)
- _____ Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- _____ Salt Crust (B11)
- _____ Aquatic Invertebrates (B13)
- _____ Hydrogen Sulfide Odor (C1)
- _____ Oxidized Rhizospheres along Living Roots (C3)
- _____ Presence of Reduced Iron (C4)
- _____ Recent Iron Reduction in Plowed Soils (C6)
- _____ Stunted or Stressed Plants (D1) **(LRR A)**
- _____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- _____ Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- _____ Drainage Patterns (B10)
- _____ Dry-Season Water Table (C2)
- _____ Saturation Visible on Aerial Imagery (C9)
- _____ Geomorphic Position (D2)
- _____ Shallow Aquitard (D3)
- _____ Fac-Neutral Test (D5)
- _____ Raised Ant Mounds (D6) **(LRR A)**
- _____ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

PHS # 4495

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

Project/Site: Glenwood LWI | City/County: Springfield / Lane | Sampling Date: 8/12/2009

Applicant/Owner: Lane Council of Governments | State: OR | Sampling Point: 3

Investigator(s): ME/SE | Section, Township, Range: Sec 34, T17S, R3W

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): LRRA | Lat: 44.04075 | Long: -123.04243 | Datum: DD

Soil Map Unit Name: Chehalis silty clay loam | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks)

Are vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y

Are vegetation ___ Soil ___ or Hydrology ___ naturally problematic? If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is Sampled Area within a Wetland?**	Yes X No
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: 30)			
1 *Salix sitchensis*	90	X	FACW
2 *Fraxinus latifolia*	10		FACW
3			
4			
	100	= Total Cover	
Sapling/Shrub Stratum (plot size: 5)			
1 *Cornus stolonifera*	25	X	FACW
2			
3			
4			
5			
	25	= Total Cover	
Herb Stratum (plot size: 5)			
1 *Unidentified forb*	10	X	NL
2			
3			
4			
5			
6			
7			
8			
	10	= Total Cover	
Woody Vine Stratum (plot size:)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 90

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	0
FACW species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
UPL Species		x 5 =	0
Column Totals	0 (A)		0 (B)

Prevalence Index =B/A = #DIV/0!

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤ 3.0[1]

___ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

Lack of herb cover apprently due to dense canopy and ponding until at least early summer.

SOIL

PHS # 4495 Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	85	10YR 3/4	15	C	M	Silt Loam	medium

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

	Histosol (A1)		Sandy Redox (S5)
	Histic Epipedon (A2)		Stripped Matrix (S6)
	Black Histic (A3)		Loamy Mucky Mineral (F1) (except MLRA 1)
	Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)
	Depleted Below Dark Surface (A11)		Depleted Matrix (F3)
	Thick Dark Surface (A12)	X	Redox Dark Surface (F6)
	Sandy Mucky Mineral (S1)		Depleted Dark Surface (F7)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

	2 cm Muck (A10)
	Red Parent Material (TF2)
	Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)			Secondary Indicators (2 or more required)	
	Surface Water (A1)		Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**	Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
	High Water Table (A2)			
	Saturation (A3)		Salt Crust (B11)	Drainage Patterns (B10)
	Water Marks (B1)		Aquatic Invertebrates (B13)	X Dry-Season Water Table (C2)
X	Sediment Deposits (B2)		Hydrogen Sulfide Odor (C1)	Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Oxidized Rhizospheres along Living Roots (C3)	X Geomorphic Position (D2)
	Algal Mat or Crust (B4)		Presence of Reduced Iron (C4)	Shallow Aquitard (D3)
	Iron Deposits (B5)		Recent Iron Reduction in Plowed Soils (C6)	X Fac-Neutral Test (D5)
X	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1) **(LRR A)**	Raised Ant Mounds (D6) **(LRR A)**
X	Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)	Frost-Heave Hummocks (D7)
	Sparsely Vegetated Concave Surface (B8)			

Field Observations:

Surface Water Present?	Yes		No X	Depth (inches):	
Water Table Present?	Yes		No X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	X	No	Depth (inches):	15

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

PHS # 4495

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

Project/Site: Glenwood LWI | City/County: Springfield / Lane | Sampling Date: 7/27/2009

Applicant/Owner: Lane Council of Governments | State: OR | Sampling Point: 4

Investigator(s): ME/SE | Section, Township, Range: Sec 3, T18S, R3W

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): LRRA | Lat: 44.04075 | Long: -123.04243 | Datum: DD

Soil Map Unit Name: Chehalis silty clay loam | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks)

Are vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y

Are vegetation ___ Soil ___ or Hydrology ___ naturally problematic? If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes	X	No	**Is Sampled Area within a Wetland?**	Yes X No
Wetland Hydrology Present?	Yes	X	No		

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size:)			
1			
2			
3			
4			
	0	= Total Cover	
Sapling/Shrub Stratum (plot size:)			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb Stratum (plot size: 5)			
1 *Mentha arvensis*	27	X	FACW
2 *Juncus effusus*	3		FACW
3 *Carex leptopoda*	5		FAC
4 *Bidens sp.*	5		(FAC)
5			
6			
7			
8			
	40	= Total Cover	
Woody Vine Stratum (plot size:)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 60

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	0
FACW species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
UPL Species		x 5 =	0
Column Totals	0 (A)		0 (B)

Prevalence Index =B/A = #DIV/0!

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- Prevalence Index is ≤ 3.0[1]
- Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL PHS # 4495 Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	2.5Y 3/1	95	10YR 4/6	5	C	M	Silt	medium
9-15	2.5Y 3/1	100					Silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

	Histosol (A1)		Sandy Redox (S5)
	Histic Epipedon (A2)		Stripped Matrix (S6)
	Black Histic (A3)		Loamy Mucky Mineral (F1) (except MLRA 1)
	Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)
	Depleted Below Dark Surface (A11)		Depleted Matrix (F3)
	Thick Dark Surface (A12)	X	Redox Dark Surface (F6)
	Sandy Mucky Mineral (S1)		Depleted Dark Surface (F7)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

	2 cm Muck (A10)
	Red Parent Material (TF2)
	Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

	Surface Water (A1)		Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**		Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
X	High Water Table (A2)				
X	Saturation (A3)		Salt Crust (B11)	X	Drainage Patterns (B10)
	Water Marks (B1)		Aquatic Invertebrates (B13)		Dry-Season Water Table (C2)
	Sediment Deposits (B2)	X	Hydrogen Sulfide Odor (C1)		Saturation Visible on Aerial Imagery (C9)
	Drift Deposits (B3)		Oxidized Rhizospheres along Living Roots (C3)	X	Geomorphic Position (D2)
	Algal Mat or Crust (B4)		Presence of Reduced Iron (C4)		Shallow Aquitard (D3)
	Iron Deposits (B5)		Recent Iron Reduction in Plowed Soils (C6)	X	Fac-Neutral Test (D5)
	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1) **(LRR A)**		Raised Ant Mounds (D6) **(LRR A)**
	Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)		Frost-Heave Hummocks (D7)
	Sparsely Vegetated Concave Surface (B8)				

Field Observations:

Surface Water Present?	Yes		No X	Depth (inches):	
Water Table Present?	Yes	X	No	Depth (inches):	4
Saturation Present? (includes capillary fringe)	Yes	X	No	Depth (inches):	0

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

PHS # 4495

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

Project/Site: Glenwood LWI | City/County: Springfield / Lane | Sampling Date: 9/15/2009

Applicant/Owner: Lane Council of Governments | State: OR | Sampling Point: 5

Investigator(s): ME/SE | Section, Township, Range: Sec 3, T18S, R3W

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): LRRA | Lat: 44.04075 | Long: -123.04243 | Datum: DD

Soil Map Unit Name: Chehalis silty clay loam | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks)

Are vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y

Are vegetation ___ Soil ___ or Hydrology ___ naturally problematic? If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is Sampled Area within a Wetland?**	Yes X No
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: 30)			
1 *Populus trichocarpa*	25	X	FAC
2			
3			
4			
	25	= Total Cover	
Sapling/Shrub Stratum (plot size: 5)			
1 *Rubus discolor*	30	X	FACU
2			
3			
4			
5			
	30	= Total Cover	
Herb Stratum (plot size: 5)			
1 *Phalaris arundinacea*	65	X	FACW
2 *Artemisia sp.*	5		(FACW-UPL)
3 *Cirsium arvense*	5		FACU
4			
5			
6			
7			
8			
	75	= Total Cover	
Woody Vine Stratum (plot size:)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	0
FACW species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
UPL Species		x 5 =	0
Column Totals	0 (A)		0 (B)

Prevalence Index =B/A = #DIV/0!

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- ___ Prevalence Index is ≤ 3.0[1]
- ___ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL PHS # 4495 Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5 2.5/2	100					Silt Loam	
8-13	7.5 2.5/2	70	10YR 5/8	30	C	M	Silt Loam	medium
13-17	7.5 2.5/2	70	10YR 5/8	20	C	M	Clay	medium
	10YR 5/4	10						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1) (except MLRA 1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10)
- ____ Red Parent Material (TF2)
- ____ Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ____

Hydric Soil Present? Yes X No ____

Remarks:

Recently scraped- apparently young soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- ____ Salt Crust (B11)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Stunted or Stressed Plants (D1) **(LRR A)**
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Fac-Neutral Test (D5)
- ____ Raised Ant Mounds (D6) **(LRR A)**
- ____ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

PHS # 4495

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

Project/Site: Glenwood LWI | City/County: Springfield / Lane | Sampling Date: 10/7/2009

Applicant/Owner: Lane Council of Governments | State: OR | Sampling Point: 6

Investigator(s): ME/SE | Section, Township, Range: Sec 3, T18S, R3W

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): LRRA | Lat: 44.03715 | Long: -123.03744 | Datum: DD

Soil Map Unit Name: Bellpine silty clay loam | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks)

Are vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y

Are vegetation ___ Soil ___ or Hydrology ___ naturally problematic? If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes		No	X	**Is Sampled Area within a Wetland?** Yes ___ No X
Hydric Soil Present?	Yes		No	X	
Wetland Hydrology Present?	Yes		No	X	

Remarks:

VEGETATION - Use scientific names of plants.

		absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size:)				
1				
2				
3				
4				
		0	= Total Cover	
Sapling/Shrub Stratum (plot size: 5)				
1	*Quercus garryana*	10	X	UPL
2	*Cytisus scoparius*	10	X	UPL
3	*Crataegus monogyna*	5		FACU
4	*Rubus ursinus*	5		FACU
5				
		30	= Total Cover	
Herb Stratum (plot size: 5)				
1	*Festuca arundinacea*	25	X	FAC
2	*Bromus mollis*	3		UPL
3	*Agrostis tenuis*	50	X	FAC
4				
5				
6				
7				
8				
		78	= Total Cover	
Woody Vine Stratum (plot size:)				
1				
2				
		0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	0
FACW species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
UPL Species		x 5 =	0
Column Totals	0 (A)		0 (B)

Prevalence Index =B/A = #DIV/0!

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤ 3.0[1]

___ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

SOIL PHS # 4495 Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100					Silt Loam	
6-10	10YR 3/3	100					Silt	
10-16	2.5Y 4/3	100					Silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _____ Histosol (A1)
- _____ Histic Epipedon (A2)
- _____ Black Histic (A3)
- _____ Hydrogen Sulfide (A4)
- _____ Depleted Below Dark Surface (A11)
- _____ Thick Dark Surface (A12)
- _____ Sandy Mucky Mineral (S1)
- _____ Sandy Gleyed Matrix (S4)
- _____ Sandy Redox (S5)
- _____ Stripped Matrix (S6)
- _____ Loamy Mucky Mineral (F1) (except MLRA 1)
- _____ Loamy Gleyed Matrix (F2)
- _____ Depleted Matrix (F3)
- _____ Redox Dark Surface (F6)
- _____ Depleted Dark Surface (F7)
- _____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- _____ 2 cm Muck (A10)
- _____ Red Parent Material (TF2)
- _____ Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- _____ Surface Water (A1)
- _____ High Water Table (A2)
- _____ Saturation (A3)
- _____ Water Marks (B1)
- _____ Sediment Deposits (B2)
- _____ Drift Deposits (B3)
- _____ Algal Mat or Crust (B4)
- _____ Iron Deposits (B5)
- _____ Surface Soil Cracks (B6)
- _____ Inundation Visible on Aerial Imagery (B7)
- _____ Sparsely Vegetated Concave Surface (B8)
- _____ Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- _____ Salt Crust (B11)
- _____ Aquatic Invertebrates (B13)
- _____ Hydrogen Sulfide Odor (C1)
- _____ Oxidized Rhizospheres along Living Roots (C3)
- _____ Presence of Reduced Iron (C4)
- _____ Recent Iron Reduction in Plowed Soils (C6)
- _____ Stunted or Stressed Plants (D1) **(LRR A)**
- _____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- _____ Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- _____ Drainage Patterns (B10)
- _____ Dry-Season Water Table (C2)
- _____ Saturation Visible on Aerial Imagery (C9)
- _____ Geomorphic Position (D2)
- _____ Shallow Aquitard (D3)
- _____ Fac-Neutral Test (D5)
- _____ Raised Ant Mounds (D6) **(LRR A)**
- _____ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

PHS # 4495

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

Project/Site: Glenwood LWI | City/County: Springfield / Lane | Sampling Date: 10/7/2009

Applicant/Owner: Lane Council of Governments | State: OR | Sampling Point: 7

Investigator(s): ME/SE | Section, Township, Range: Sec 3, T18S, R3W

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): LRRA | Lat: 44.03715 | Long: -123.03744 | Datum: DD

Soil Map Unit Name: Bellpine silty clay loam | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks)

Are vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y

Are vegetation ___ Soil ___ or Hydrology ___ naturally problematic? If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes		No	X	**Is Sampled Area within a Wetland?** Yes ___ No X
Hydric Soil Present?	Yes		No	X	
Wetland Hydrology Present?	Yes		No	X	

Remarks:

VEGETATION - Use scientific names of plants.

		absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size:)				
1				
2				
3				
4				
		0	= Total Cover	
Sapling/Shrub Stratum (plot size: 5)				
1	*Crataegus monogyna*	5	X	FACU
2	*Rhus diversiloba*	5	X	UPL
3	*Rubus discolor*	3	X	FACU
4				
5				
		13	= Total Cover	
Herb Stratum (plot size: 5)				
1	*Chrysanthemum*	30	X	UPL
2	*Hypericum perforatum*	10		UPL
3	*Juncus tenuis*	50	X	FACW
4	*Centaurium umbellatum*	5		FAC
5	*Agrostis tenuis*	5		FAC
6				
7				
8				
		100	= Total Cover	
Woody Vine Stratum (plot size:)				
1				
2				
		0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	0
FACW species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
UPL Species		x 5 =	0
Column Totals	0 (A)		0 (B)

Prevalence Index =B/A = #DIV/0!

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤ 3.0[1]

___ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

SOIL PHS # 4495 Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100					Silt	
10-16	10YR 3/3	100					Silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _____ Histosol (A1)
- _____ Histic Epipedon (A2)
- _____ Black Histic (A3)
- _____ Hydrogen Sulfide (A4)
- _____ Depleted Below Dark Surface (A11)
- _____ Thick Dark Surface (A12)
- _____ Sandy Mucky Mineral (S1)
- _____ Sandy Gleyed Matrix (S4)
- _____ Sandy Redox (S5)
- _____ Stripped Matrix (S6)
- _____ Loamy Mucky Mineral (F1) (except MLRA 1)
- _____ Loamy Gleyed Matrix (F2)
- _____ Depleted Matrix (F3)
- _____ Redox Dark Surface (F6)
- _____ Depleted Dark Surface (F7)
- _____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- _____ 2 cm Muck (A10)
- _____ Red Parent Material (TF2)
- _____ Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- _____ Surface Water (A1)
- _____ High Water Table (A2)
- _____ Saturation (A3)
- _____ Water Marks (B1)
- _____ Sediment Deposits (B2)
- _____ Drift Deposits (B3)
- _____ Algal Mat or Crust (B4)
- _____ Iron Deposits (B5)
- _____ Surface Soil Cracks (B6)
- _____ Inundation Visible on Aerial Imagery (B7)
- _____ Sparsely Vegetated Concave Surface (B8)
- _____ Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- _____ Salt Crust (B11)
- _____ Aquatic Invertebrates (B13)
- _____ Hydrogen Sulfide Odor (C1)
- _____ Oxidized Rhizospheres along Living Roots (C3)
- _____ Presence of Reduced Iron (C4)
- _____ Recent Iron Reduction in Plowed Soils (C6)
- _____ Stunted or Stressed Plants (D1) **(LRR A)**
- _____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- _____ Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- _____ Drainage Patterns (B10)
- _____ Dry-Season Water Table (C2)
- _____ Saturation Visible on Aerial Imagery (C9)
- _____ Geomorphic Position (D2)
- _____ Shallow Aquitard (D3)
- _____ Fac-Neutral Test (D5)
- _____ Raised Ant Mounds (D6) **(LRR A)**
- _____ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

PHS # 4495

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

Project/Site: Glenwood LWI | City/County: Springfield / Lane | Sampling Date: 8/12/2009

Applicant/Owner: Lane Council of Governments | State: OR | Sampling Point: 8

Investigator(s): ME/SE | Section, Township, Range: Sec 3, T18S, R3W

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): LRRA | Lat: 44.03716 | Long: -123.03245 | Datum: DD

Soil Map Unit Name: Bellpine silty clay loam | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks)

Are vegetation ____ Soil X or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) N

Are vegetation ____ Soil X or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes		No	X	
Hydric Soil Present?	Yes		No	X	**Is Sampled Area within a Wetland?** Yes ____ No X
Wetland Hydrology Present?	Yes	X	No		

Remarks:
This area has been scraped in the past and it appears to have disturbed the soil profile. There is bedrock around 9" from the surface. This wetland has been identified as a mosaic area.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: ____)			
1			
2			
3			
4			
	0	= Total Cover	
Sapling/Shrub Stratum (plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb Stratum (plot size: 5)			
1 *Linum bienne*	15	X	UPL
2 *Madia sativa*	15	X	UPL
3 *Juncus tenuis*	20	X	FACW
4 *Cynosurus echinatus*	15	X	UPL
5 *Agrostis tenuis*	15	X	FAC
6 *Festuca arundinacea*	10		FAC
7 *Aira caryophylla*	10		NI
8			
	100	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	0
FACW species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
UPL Species		x 5 =	0
Column Totals	0 (A)		0 (B)

Prevalence Index =B/A = #DIV/0!

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is ≤ 3.0[1]

____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
This sample point was taken in the upland portion of the mosiac area.

SOIL PHS # 4495 Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 5/3	90	7.5YR 5/8	10	C	M	Silt Loam	
1-9	10YR 5/3	100					Silt Loam	rocks in profile

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1) (except MLRA 1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10)
- ____ Red Parent Material (TF2)
- ____ Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ____

Hydric Soil Present? Yes ____ No X

Remarks:

The soil is shallow likely as a result of being scraped. The parent material of the soil is a bright color and contained mottling and in some areas ORs.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- X Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- X Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- ____ Salt Crust (B11)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Stunted or Stressed Plants (D1) **(LRR A)**
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Fac-Neutral Test (D5)
- ____ Raised Ant Mounds (D6) **(LRR A)**
- ____ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

There is evidence of seasonal ponding.

PHS # 4495

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

Project/Site: Glenwood LWI | City/County: Springfield / Lane | Sampling Date: 10/7/2009

Applicant/Owner: Lane Council of Governments | State: OR | Sampling Point: 9

Investigator(s): ME/SE | Section, Township, Range: Sec 3, T18S, R3W

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): LRRA | Lat: 44.03716 | Long: -123.03245 | Datum: DD

Soil Map Unit Name: Bellpine silty clay loam | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks)

Are vegetation ____ Soil X or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) N

Are vegetation ____ Soil X or Hydrology ____ naturally problematic? If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes	X	No	**Is Sampled Area within a Wetland?**	Yes X No
Wetland Hydrology Present?	Yes	X	No		

Remarks:
This area has been scraped in the past and it appears to have disturbed the soil profile. There is bedrock around 9 inches from the surface; therefore, we are assuming the soil is hydric. This wetland has been identified as a mosaic area.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: ____)			
1			
2			
3			
4			
	0	= Total Cover	
Sapling/Shrub Stratum (plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb Stratum (plot size: 5)			
1 *Agrostis alba*	20	X	FAC
2 *Juncus effusus*	20	X	FACW
3 *Cynosurus echinatus*	10		UPL
4 *Linum bienne*	15		UPL
5 *Agrostis tenuis*	2		FAC
6 *Geranium molle*	3		UPL
7 *moss*	30	X	NL
8 *Holcus lanatus*	20	X	FAC
	120	= Total Cover	
Woody Vine Stratum (plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	0
FACW species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
UPL Species		x 5 =	0
Column Totals	0 (A)		0 (B)

Prevalence Index =B/A = #DIV/0!

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is ≤ 3.0[1]

____ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
This sample point was taken in the wetland portion of the mosiac area.

SOIL PHS # 4495 Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/4	100					Silt	
2-5	2.5Y 4/3	90	10YR 4/6	10	C	M	Silt	
5-17	10YR 4/3						Silt	stone bedrock

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

	Histosol (A1)		Sandy Redox (S5)
	Histic Epipedon (A2)		Stripped Matrix (S6)
	Black Histic (A3)		Loamy Mucky Mineral (F1) (except MLRA 1)
	Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)
	Depleted Below Dark Surface (A11)		Depleted Matrix (F3)
	Thick Dark Surface (A12)		Redox Dark Surface (F6)
	Sandy Mucky Mineral (S1)		Depleted Dark Surface (F7)
	Sandy Gleyed Matrix (S4)		Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

	2 cm Muck (A10)
	Red Parent Material (TF2)
X	Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:

The soil is shallow likely as a result of being scraped. The parent material of the soil is a bright color and contained mottling and in some areas Ors.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

	Surface Water (A1)		Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
	High Water Table (A2)		
	Saturation (A3)		Salt Crust (B11)
	Water Marks (B1)		Aquatic Invertebrates (B13)
	Sediment Deposits (B2)		Hydrogen Sulfide Odor (C1)
	Drift Deposits (B3)	X	Oxidized Rhizospheres along Living Roots (C3)
	Algal Mat or Crust (B4)		Presence of Reduced Iron (C4)
	Iron Deposits (B5)		Recent Iron Reduction in Plowed Soils (C6)
X	Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1) **(LRR A)**
	Inundation Visible on Aerial Imagery (B7)		Other (Explain in Remarks)
	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (2 or more required)

	Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
X	Drainage Patterns (B10)
	Dry-Season Water Table (C2)
	Saturation Visible on Aerial Imagery (C9)
X	Geomorphic Position (D2)
X	Shallow Aquitard (D3)
	Fac-Neutral Test (D5)
	Raised Ant Mounds (D6) **(LRR A)**
	Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes		No X	Depth (inches):	
Water Table Present?	Yes		No X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes		No X	Depth (inches):	

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

There is evidence of seasonal ponding.

PHS # 4495

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

Project/Site: Glenwood LWI | City/County: Springfield / Lane | Sampling Date: 10/7/2009

Applicant/Owner: Lane Council of Governments | State: OR | Sampling Point: 10

Investigator(s): ME/SE | Section, Township, Range: Sec 3, T18S, R3W

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): LRRA | Lat: 44.03716 | Long: -123.03245 | Datum: DD

Soil Map Unit Name: Bellpine silty clay loam | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks)

Are vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y

Are vegetation ___ Soil ___ or Hydrology ___ naturally problematic? If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is Sampled Area within a Wetland?** Yes ___ No X
Wetland Hydrology Present?	Yes		No	X	

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: ___)			
1			
2			
3			
4			
	0	= Total Cover	
Sapling/Shrub Stratum (plot size: 5)			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb Stratum (plot size: 5)			
1 *Lactuca serriola*	3		FACU
2 *Holcus lanatus*	2		FAC
3 *Alopecurus pratensis*	2		FACW
4 *Juncus tenuis*	100	X	FACW
5 *Festuca arundinacea*	3		FAC
6			
7			
8			
	110	= Total Cover	
Woody Vine Stratum (plot size: ___)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	0
FACW species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
UPL Species		x 5 =	0
Column Totals	0 (A)		0 (B)

Prevalence Index =B/A = #DIV/0!

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- ___ Prevalence Index is ≤ 3.0[1]
- ___ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks:

Other vegetation adjacent: Rosa nutkana, Fraxinus latifolia sapling, Dipsacus sylvestris, Cytisus scoparius, Galium aparine, Crataegus monogyna.

SOIL PHS # 4495 Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Silt Loam	
3-5	10YR 3/2	85	10YR 5/6	15	C	M	Silt	
5-17	2.5Y 3/3	20	10YR 4/6	80	C	M	Silt	stone bedrock

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1) (except MLRA 1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10)
- ____ Red Parent Material (TF2)
- ____ Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ____

Hydric Soil Present? Yes ____ No X

Remarks:

Not thick enough with a 2" layer of hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- ____ Salt Crust (B11)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Stunted or Stressed Plants (D1) **(LRR A)**
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Fac-Neutral Test (D5)
- ____ Raised Ant Mounds (D6) **(LRR A)**
- ____ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

PHS # 4495

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

Project/Site: Glenwood LWI | City/County: Springfield / Lane | Sampling Date: 8/12/2009

Applicant/Owner: Lane Council of Governments | State: OR | Sampling Point: 11

Investigator(s): ME/SE | Section, Township, Range: Sec 3, T18S, R3W

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): LRRA | Lat: 44.03716 | Long: -123.03245 | Datum: DD

Soil Map Unit Name: Bellpine silty clay loam | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks)

Are vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y

Are vegetation ___ Soil ___ or Hydrology ___ naturally problematic? If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	X	No		
Hydric Soil Present?	Yes		No	X	**Is Sampled Area within a Wetland?** Yes ___ No X
Wetland Hydrology Present?	Yes		No	X	

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: ___)			
1			
2			
3			
4			
	0	= Total Cover	
Sapling/Shrub Stratum (plot size: ___)			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb Stratum (plot size: 5)			
1 *Juncus tenuis*	40	X	FACW
2 *Hypericum perforatum*	2		UPL
3 *Chrysanthemum*	5		UPL
4 *Cirsium vulgare*	5		FACU
5 *Galium aparine*	3		FACU
6			
7			
8			
	55	= Total Cover	
Woody Vine Stratum (plot size: ___)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	0
FACW species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
UPL Species		x 5 =	0
Column Totals	0 (A)		0 (B)

Prevalence Index =B/A = #DIV/0!

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- ___ Prevalence Index is ≤ 3.0[1]
- ___ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks:

SOIL PHS # 4495 Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					Silt Loam	
6-12	10YR 4/4	100					Silt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1) (except MLRA 1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10)
- ____ Red Parent Material (TF2)
- ____ Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ____

Hydric Soil Present? Yes ____ No X

Remarks:

Recently scraped- apparently young soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Surface Soil Cracks (B6)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- ____ Salt Crust (B11)
- ____ Aquatic Invertebrates (B13)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres along Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Plowed Soils (C6)
- ____ Stunted or Stressed Plants (D1) **(LRR A)**
- ____ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ____ Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- X Fac-Neutral Test (D5)
- ____ Raised Ant Mounds (D6) **(LRR A)**
- ____ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

PHS # 4495

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

Project/Site: Glenwood LWI | City/County: Springfield / Lane | Sampling Date: 9/15/2009

Applicant/Owner: Lane Council of Governments | State: OR | Sampling Point: 12

Investigator(s): ME/SE | Section, Township, Range: Sec 1, T18S, R3W

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): | Slope (%):

Subregion (LRR): LRRA | Lat: 44.02995 | Long: -123.02745 | Datum: DD

Soil Map Unit Name: Philomath cobbly silty clay | NWI Classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks)

Are vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y

Are vegetation ___ Soil ___ or Hydrology ___ naturally problematic? If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No	**Is Sampled Area within a Wetland?**	Yes X No
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (plot size: 30)			
1 *Fraxinus latifolia*	60	X	FACW
2			
3			
4			
	60	= Total Cover	
Sapling/Shrub Stratum (plot size:)			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb Stratum (plot size: 5)			
1 *Phalaris arundinacea*	60	X	FACW
2 *Solanum dulcamara*	30	X	FAC
3 *Melissa officinalis*	3		UPL
4			
5			
6			
7			
8			
	93	= Total Cover	
Woody Vine Stratum (plot size:)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index Worksheet:

Total % Cover of		Multiply by:	
OBL Species		x 1 =	0
FACW species		x 2 =	0
FAC Species		x 3 =	0
FACU Species		x 4 =	0
UPL Species		x 5 =	0
Column Totals	0 (A)		0 (B)

Prevalence Index =B/A = #DIV/0!

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- ___ Prevalence Index is ≤ 3.0[1]
- ___ Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL PHS # 4495 Sampling Point: 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(Inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 3/1	90					Silty Clay Loam	10% gravel
								refusal below 12"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (except MLRA 1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- X Other (explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

Recently scraped soils, which apparently are too young to have not formed hydric soil conditions. The compaction of the soil from being scraped appears to cause seasonal ponding.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water stained Leaves (B9) **(Except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water stained Leaves (B9) **(MLRA1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Fac-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes ___	No X	Depth (inches): ___	**Wetland Hydrology Present?**	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___	**Yes X**	**No ___**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

None

Remarks:

Evidence of ponding, water marks, and sediment deposits

Appendix D

OFWAM Data and Results

Oregon Freshwater Wetland Assessment Methodology

(Revised Edition, April 1996)

Wetland Assessment Summary Sheet

Pacific Habitat Services, Inc.

Project Name:	Glenwood Area of Springfield LWI	Wetland:	GS-1
Project Location:	Glenwood, Oregon	Wetland Type(s):	PSS

Date(s) of field work:	10/7/2009	Approx. Area (acres):	0.47
Onsite Assessment?:	Yes	Investigator(s):	ME/SE
Wetland Location:	Under and east of the Interstate 5 Bridge just S of Franklin Blvd.		

Function and Condition Assessment Answers

Wildlife Habitat		Fish Habitat		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q	A	Q	A	Q	A	Q	A	Q	A
Q-1	B	Q-1	A	Q-1	C	Q-1	B	Q-1	A
Q-2	A	Q-2	C	Q-2	C	Q-2	C	Q-2	B
Q-3	C	Q-3	C	Q-3	A	Q-3	B	Q-3	C
Q-4	C	Q-4	A	Q-4	B	Q-4	B	Q-4	A
Q-5	A	Q-5	C	Q-5	A	Q-5	A	Q-5	A
Q-6	A	Q-6	C	Q-6	C	Q-6	C	Q-6	A
Q-7	A					Q-7	A		
Q-8	C								
Q-9A									
Q-9B	B								

Results:

Wildlife Habitat	**Wetland provides habitat for some wildlife species**
Fish Habitat	**Wetland's fish habitat function is impacted or degraded**
Water Quality	**Wetland's water-quality function is impacted or degraded**
Hydrologic Control	**Wetland's hydrologic control is impacted or degraded**
Sensitivity to Impact	*Wetland is potentially sensitive to future impacts*

Function and Condition Assessment Answers

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q	A	Q	A	Q	A	Q	A
Q-1	A	Q-1	B	Q-1	A	Q-1	C
Q-2	B	Q-2	B	Q-2	C	Q-2	B
Q-3		Q-3	B	Q-3	A	Q-3	C
Q-4	B	Q-4	C	Q-4	B	Q-4	B
Q-5B	B	Q-5	A	Q-5	B	Q-5	A
Q-6	B	Q-6	B	Q-6	B	Q-6	B

Results:

Enhancement Potential	*Wetland has high enhancement potential*
Education	**Wetland has potential for educational use**
Recreation	**Wetland provides recreational opportunities**
Aesthetic Quality	*Wetland is not aesthetically pleasing*

Oregon Freshwater Wetland Assessment Methodology
Functions and Conditions Summary Sheet

Project:	Glenwood Area of Springfield LWI	**Wetland:**	**GS-1**
Location:	Glenwood, Oregon	**Approx. Area (acres):**	0.47
Date:	10/7/2009	**Wetland Types(s):**	PSS

Result:	**Wetland provides habitat for some wildlife species**	
Rationale:	One Cowardin class with > 5 species	No adjacent Water Quality limited streams
	Dominated by woody vegetation	Adjacent land is mostly developed
	Less than 0.5 acres of open water	Wetland buffer is between 10% and 40%
Result:	**Wetland's fish habitat function is impacted or degraded**	
Rationale:	More than 75% of the stream is shaded	No adjacent Water Quality Limited streams
	Stream banks are extensively modified	Adjacent land is mostly developed
	<10% of stream has instream structures	Stream does not contain fish
Result:	**Wetland's water-quality function is impacted or degraded**	
Rationale:	Primary water source is groundwater	Wetland is between 0.5 and 5 acres
	Wetland does not flood or pond	Adjacent land is mostly developed
	High wetland vegetation cover	No adjacent Water Quality Limited streams
Result:	**Wetland's hydrologic control is impacted or degraded**	
Rationale:	Wetland is not within 100 year floodplain	Dominated by woody vegetation
	Wetland does not flood or pond	Open space downslope of development
	Minor restrictions slow down the water	Development upslope of wetland
Result:	*Wetland is potentially sensitive to future impacts*	
Rationale:	Stream modified or isolated wetland	Adjacent land is mostly developed
	Water not taken out	Adjacent zoning is primarily development
	No adjacent Water Quality Limited streams	Dominated by woody vegetation
Result:	*Wetland has high enhancement potential*	
Rationale:	Wetland functions are impacted or degraded	Wetland is between 0.5 and 5 acres
	Primary water source is groundwater	Wetland buffer is between 10% and 40%
		Potentially sensitive to future impacts
Result:	**Wetland has potential for educational use**	
Rationale:	Wetland access by landowner permission	Maintained public access within 250 feet
	1 or 2 visible safety hazards	Wetland is not limited mobility accessible
	No access or observation of other habitats	
Result:	**Wetland provides recreational opportunities**	
Rationale:	Maintained public access within 250 feet	Wetland provides habitat for some wildlife
	No boat launching can be developed	No fishing is allowed
	Maintained trails, viewing areas exist	No hunting is allowed
Result:	*Wetland is not aesthetically pleasing*	
Rationale:	One Cowardin class is visible	Wetland surrounded by landscaped areas
	25 - 50% of wetland can be seen	Natural odors present at wetland
	Visual detractors present, can't be removed	Continuous traffic and natural noises occur

Oregon Freshwater Wetland Assessment Methodology

(Revised Edition, April 1996)

Wetland Assessment Summary Sheet

Pacific Habitat Services, Inc.

Project Name:	Glenwood Area of Springfield LWI	Wetland:	GS-2
Project Location:	Glenwood, Oregon	Wetland Type(s):	PFO

Date(s) of field work:	7/27/2009	Approx. Area (acres):	2.53
Onsite Assessment?:	Partial	Investigator(s):	ME/SE
Wetland Location:	East of the Interstate 5 Bridge, south of Franklin Blvd.		

Function and Condition Assessment Answers

Wildlife Habitat		Fish Habitat		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q	A	Q	A	Q	A	Q	A	Q	A
Q-1	B	Q-1	B	Q-1	C	Q-1	B	Q-1	A
Q-2	A	Q-2	B	Q-2	B	Q-2	B	Q-2	B
Q-3	C	Q-3	C	Q-3	B	Q-3	B	Q-3	C
Q-4	C	Q-4	A	Q-4	B	Q-4	C	Q-4	A
Q-5	A	Q-5	C	Q-5	A	Q-5	A	Q-5	A
Q-6	A	Q-6	C	Q-6	C	Q-6	A	Q-6	A
Q-7	A					Q-7	A		
Q-8	C								
Q-9A									
Q-9B	A								

Results:

Wildlife Habitat	**Wetland provides habitat for some wildlife species**
Fish Habitat	**Wetland's fish habitat function is impacted or degraded**
Water Quality	**Wetland's water-quality function is impacted or degraded**
Hydrologic Control	**Wetland's hydrologic control is impacted or degraded**
Sensitivity to Impact	*Wetland is potentially sensitive to future impacts*

Function and Condition Assessment Answers

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q	A	Q	A	Q	A	Q	A
Q-1	A	Q-1	C	Q-1	A	Q-1	C
Q-2	B	Q-2	A	Q-2	C	Q-2	C
Q-3		Q-3	B	Q-3	A	Q-3	A
Q-4	B	Q-4	C	Q-4	B	Q-4	B
Q-5B	A	Q-5	A	Q-5	B	Q-5	A
Q-6	B	Q-6	B	Q-6	B	Q-6	C

Results:

Enhancement Potential	*Wetland has high enhancement potential*
Education	**Wetland site is not appropriate for educational use**
Recreation	**Wetland provides recreational opportunities**
Aesthetic Quality	*Wetland is not aesthetically pleasing*

Oregon Freshwater Wetland Assessment Methodology
Functions and Conditions Summary Sheet

Project:	Glenwood Area of Springfield LWI	**Wetland:**	**GS-2**
Location:	Glenwood, Oregon	**Approx. Area (acres):**	2.53
Date:	7/27/2009	**Wetland Types(s):**	PFO

Result:	**Wetland provides habitat for some wildlife species**	
Rationale:	One Cowardin class with > 5 species	No adjacent Water Quality limited streams
	Dominated by woody vegetation	Adjacent land is mostly developed
	Less than 0.5 acres of open water	Wetland buffer is greater than 40%
Result:	**Wetland's fish habitat function is impacted or degraded**	
Rationale:	50-75% of stream is shaded	No adjacent Water Quality Limited streams
	Only portions of stream are modified	Adjacent land is mostly developed
	<10% of stream has instream structures	Stream does not contain fish
Result:	**Wetland's water-quality function is impacted or degraded**	
Rationale:	Primary water source is groundwater	Wetland is between 0.5 and 5 acres
	Can't determine if wetland floods or ponds	Adjacent land is mostly developed
	Moderate vegetation cover	No adjacent Water Quality Limited streams
Result:	**Wetland's hydrologic control is impacted or degraded**	
Rationale:	Wetland is not within 100 year floodplain	Dominated by woody vegetation
	Can't determine if wetland floods or ponds	Development downslope of wetland
	Water has unrestricted flow out of wetland	Development upslope of wetland
Result:	*Wetland is potentially sensitive to future impacts*	
Rationale:	Stream modified or isolated wetland	Adjacent land is mostly developed
	Water not taken out	Adjacent zoning is primarily development
	No adjacent Water Quality Limited streams	Dominated by woody vegetation
Result:	*Wetland has high enhancement potential*	
Rationale:	Wetland functions are impacted or degraded	Wetland is between 0.5 and 5 acres
	Primary water source is groundwater	Wetland buffer is greater than 40%
		Potentially sensitive to future impacts
Result:	**Wetland site is not appropriate for educational use**	
Rationale:	No access allowed to wetland	Maintained public access within 250 feet
	No visible hazards to public	Wetland is not limited mobility accessible
	No access or observation of other habitats	
Result:	**Wetland provides recreational opportunities**	
Rationale:	Maintained public access within 250 feet	Wetland provides habitat for some wildlife
	No boat launching can be developed	No fishing is allowed
	Maintained trails, viewing areas exist	No hunting is allowed
Result:	*Wetland is not aesthetically pleasing*	
Rationale:	One Cowardin class is visible	Wetland surrounded by landscaped areas
	Less than 25% of wetland can be seen	Natural odors present at wetland
	No visual detractors are present	Traffic noise and no natural noises

Oregon Freshwater Wetland Assessment Methodology

(Revised Edition, April 1996)

Wetland Assessment Summary Sheet

Pacific Habitat Services, Inc.

Project Name:	Glenwood Area of Springfield LWI	**Wetland:**	**GS-3**
Project Location:	Glenwood, Oregon	**Wetland Type(s):**	PSS/PUB

Date(s) of field work:	8/12/2009	**Approx. Area (acres):**	3.72
Onsite Assessment?:	Yes	**Investigator(s):**	ME/SE
Wetland Location:	East and west of Glenwood Boulevard, north of the railroad tracks		

Function and Condition Assessment Answers

Wildlife Habitat		Fish Habitat		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q	A	Q	A	Q	A	Q	A	Q	A
Q-1	A	Q-1	A	Q-1	C	Q-1	B	Q-1	A
Q-2	B	Q-2	C	Q-2	A	Q-2	A	Q-2	B
Q-3	B	Q-3	B	Q-3	C	Q-3	B	Q-3	C
Q-4	B	Q-4	A	Q-4	B	Q-4	C	Q-4	A
Q-5	A	Q-5	C	Q-5	A	Q-5	B	Q-5	A
Q-6	C	Q-6	C	Q-6	C	Q-6	A	Q-6	B
Q-7	A					Q-7	A		
Q-8	C								
Q-9A									
Q-9B	B								

Results:

Wildlife Habitat	**Wetland provides habitat for some wildlife species**
Fish Habitat	**Wetland's fish habitat function is impacted or degraded**
Water Quality	**Wetland's water-quality function is impacted or degraded**
Hydrologic Control	**Wetland's hydrologic control is impacted or degraded**
Sensitivity to Impact	*Wetland is potentially sensitive to future impacts*

Function and Condition Assessment Answers

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q	A	Q	A	Q	A	Q	A
Q-1	A	Q-1	C	Q-1	C	Q-1	B
Q-2	B	Q-2	A	Q-2	C	Q-2	C
Q-3		Q-3	B	Q-3	C	Q-3	A
Q-4	B	Q-4	C	Q-4	B	Q-4	C
Q-5B	B	Q-5	C	Q-5	B	Q-5	A
Q-6	B	Q-6	B	Q-6	B	Q-6	B

Results:

Enhancement Potential	*Wetland has high enhancement potential*
Education	**Wetland site is not appropriate for educational use**
Recreation	**Wetland is not appropriate or does not provide rec. opportunities**
Aesthetic Quality	*Wetland is not aesthetically pleasing*

Oregon Freshwater Wetland Assessment Methodology
Functions and Conditions Summary Sheet

Project:	Glenwood Area of Springfield LWI	**Wetland:**	**GS-3**
Location:	Glenwood, Oregon	**Approx. Area (acres):**	3.72
Date:	8/12/2009	**Wetland Types(s):**	PSS/PUB

Result:	**Wetland provides habitat for some wildlife species**	
Rationale:	More than one Cowardin class	No adjacent Water Quality limited streams
	Herbaceous vegetation & ponding	Adjacent land is mostly developed
	Between 0.5 - 1 acre of open water	Wetland buffer is between 10% and 40%
Result:	**Wetland's fish habitat function is impacted or degraded**	
Rationale:	More than 75% of the stream is shaded	No adjacent Water Quality Limited streams
	Stream banks are extensively modified	Adjacent land is mostly developed
	10-25% of stream has instream structures	Stream does not contain fish
Result:	**Wetland's water-quality function is impacted or degraded**	
Rationale:	Primary water source is groundwater	Wetland is between 0.5 and 5 acres
	Wetland floods/ponds in growing season	Adjacent land is mostly developed
	Low vegetation cover	No adjacent Water Quality Limited streams
Result:	**Wetland's hydrologic control is impacted or degraded**	
Rationale:	Wetland is not within 100 year floodplain	Herbaceous vegetation & ponding
	Wetland floods/ponds in growing season	Development downslope of wetland
	Water has unrestricted flow out of wetland	Development upslope of wetland
Result:	*Wetland is potentially sensitive to future impacts*	
Rationale:	Stream modified or isolated wetland	Adjacent land is mostly developed
	Water not taken out	Adjacent zoning is primarily development
	No adjacent Water Quality Limited streams	Herbaceous vegetation & ponding
Result:	*Wetland has high enhancement potential*	
Rationale:	Wetland functions are impacted or degraded	Wetland is between 0.5 and 5 acres
	Primary water source is groundwater	Wetland buffer is between 10% and 40%
		Potentially sensitive to future impacts
Result:	**Wetland site is not appropriate for educational use**	
Rationale:	No access allowed to wetland	No access point to wetland exists
	No visible hazards to public	Wetland is not limited mobility accessible
	No access or observation of other habitats	
Result:	**Wetland is not appropriate or does not provide rec. opportunities**	
Rationale:	No access point to wetland exists	Wetland provides habitat for some wildlife
	No boat launching can be developed	No fishing is allowed
	No trails or viewing areas exist	No hunting is allowed
Result:	*Wetland is not aesthetically pleasing*	
Rationale:	Two Cowardin classes visible	Wetland surrounded by development
	Less than 25% of wetland can be seen	Natural odors present at wetland
	No visual detractors are present	Continuous traffic and natural noises occur

Oregon Freshwater Wetland Assessment Methodology

(Revised Edition, April 1996)

Wetland Assessment Summary Sheet

Pacific Habitat Services, Inc.

Project Name:	Glenwood Area of Springfield LWI	Wetland:	GS-4
Project Location:	Glenwood, Oregon	Wetland Type(s):	PEM

Date(s) of field work:	7/28/2009	Approx. Area (acres):	0.87
Onsite Assessment?:	Offsite	Investigator(s):	ME/SE
Wetland Location:	East and west of Judkins Dedicated Road, East of Interstate 5.		

Function and Condition Assessment Answers

Wildlife Habitat		Fish Habitat		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q	A	Q	A	Q	A	Q	A	Q	A
Q-1	C	Q-1		Q-1	C	Q-1	B	Q-1	A
Q-2	C	Q-2		Q-2	A	Q-2	A	Q-2	B
Q-3	C	Q-3		Q-3	A	Q-3	B	Q-3	C
Q-4	C	Q-4		Q-4	B	Q-4	C	Q-4	A
Q-5	A	Q-5		Q-5	A	Q-5	C	Q-5	A
Q-6	A	Q-6		Q-6	C	Q-6	A	Q-6	C
Q-7	A					Q-7	A		
Q-8	C								
Q-9A									
Q-9B	C								

Results:

Wildlife Habitat	**Wetland provides habitat for some wildlife species**
Fish Habitat	**Fish habitat was not assessed for this wetland**
Water Quality	**Wetland's water-quality function is impacted or degraded**
Hydrologic Control	**Wetland's hydrologic control is impacted or degraded**
Sensitivity to Impact	*Wetland is potentially sensitive to future impacts*

Function and Condition Assessment Answers

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q	A	Q	A	Q	A	Q	A
Q-1	A	Q-1	B	Q-1	C	Q-1	C
Q-2	B	Q-2	A	Q-2	C	Q-2	A
Q-3		Q-3	B	Q-3	C	Q-3	A
Q-4	B	Q-4	C	Q-4	B	Q-4	C
Q-5B	C	Q-5	C	Q-5	B	Q-5	C
Q-6	B	Q-6	B	Q-6	B	Q-6	C

Results:

Enhancement Potential	*Wetland has high enhancement potential*
Education	**Wetland has potential for educational use**
Recreation	**Wetland is not appropriate or does not provide rec. opportunities**
Aesthetic Quality	*Wetland is not aesthetically pleasing*

Oregon Freshwater Wetland Assessment Methodology
Functions and Conditions Summary Sheet

Project:	Glenwood Area of Springfield LWI	**Wetland:**	**GS-4**
Location:	Glenwood, Oregon	**Approx. Area (acres):**	0.87
Date:	7/28/2009	**Wetland Types(s):**	PEM

Result:	**Wetland provides habitat for some wildlife species**	
Rationale:	One Class with less than 5 species	No adjacent Water Quality limited streams
	Herbaceous vegetation, no ponding	Adjacent land is mostly developed
	Less than 0.5 acres of open water	Wetland buffer is less than 10%
Result:	**Fish habitat was not assessed for this wetland**	
Rationale:		
Result:	**Wetland's water-quality function is impacted or degraded**	
Rationale:	Primary water source is groundwater	Wetland is between 0.5 and 5 acres
	Wetland floods/ponds in growing season	Adjacent land is mostly developed
	High wetland vegetation cover	No adjacent Water Quality Limited streams
Result:	**Wetland's hydrologic control is impacted or degraded**	
Rationale:	Wetland is not within 100 year floodplain	Herbaceous vegetation, no ponding
	Wetland floods/ponds in growing season	Development downslope of wetland
	Water has unrestricted flow out of wetland	Development upslope of wetland
Result:	*Wetland is potentially sensitive to future impacts*	
Rationale:	Stream modified or isolated wetland	Adjacent land is mostly developed
	Water not taken out	Adjacent zoning is primarily development
	No adjacent Water Quality Limited streams	Herbaceous vegetation, no ponding
Result:	*Wetland has high enhancement potential*	
Rationale:	Wetland functions are impacted or degraded	Wetland is between 0.5 and 5 acres
	Primary water source is groundwater	Wetland buffer is less than 10%
		Potentially sensitive to future impacts
Result:	**Wetland has potential for educational use**	
Rationale:	Wetland access by landowner permission	No access point to wetland exists
	No visible hazards to public	Wetland is not limited mobility accessible
	No access or observation of other habitats	
Result:	**Wetland is not appropriate or does not provide rec. opportunities**	
Rationale:	No access point to wetland exists	Wetland provides habitat for some wildlife
	No boat launching can be developed	No fishing is allowed
	No trails or viewing areas exist	No hunting is allowed
Result:	*Wetland is not aesthetically pleasing*	
Rationale:	One Cowardin class is visible	Wetland surrounded by development
	>50% of wetland can be seen	Unpleasent odors are always present
	No visual detractors are present	Traffic noise and no natural noises

Oregon Freshwater Wetland Assessment Methodology

(Revised Edition, April 1996)

Wetland Assessment Summary Sheet

Pacific Habitat Services, Inc.

Project Name:	Glenwood Area of Springfield LWI	**Wetland:**	**GS-5**
Project Location:	Glenwood, Oregon	**Wetland Type(s):**	PFO

Date(s) of field work:	8/12/2009	**Approx. Area (acres):**	4.31
Onsite Assessment?:	Offsite	**Investigator(s):**	ME/SE
Wetland Location:	South of E 19th Avenue, bounded by Union Pacific RR tracks		

Function and Condition Assessment Answers

Wildlife Habitat		Fish Habitat		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q	A	Q	A	Q	A	Q	A	Q	A
Q-1	B	Q-1		Q-1	C	Q-1	B	Q-1	B
Q-2	A	Q-2		Q-2	B	Q-2	B	Q-2	B
Q-3	C	Q-3		Q-3	A	Q-3	C	Q-3	C
Q-4	C	Q-4		Q-4	B	Q-4	C	Q-4	A
Q-5	C	Q-5		Q-5	A	Q-5	A	Q-5	A
Q-6	C	Q-6		Q-6	C	Q-6	C	Q-6	A
Q-7	A					Q-7	A		
Q-8	C								
Q-9A									
Q-9B	C								

Results:

Wildlife Habitat	**Wetland provides habitat for some wildlife species**
Fish Habitat	**Fish habitat was not assessed for this wetland**
Water Quality	**Wetland's water-quality function is impacted or degraded**
Hydrologic Control	**Wetland's hydrologic control is impacted or degraded**
Sensitivity to Impact	*Wetland is potentially sensitive to future impacts*

Function and Condition Assessment Answers

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q	A	Q	A	Q	A	Q	A
Q-1	A	Q-1	C	Q-1	C	Q-1	C
Q-2	B	Q-2	B	Q-2	C	Q-2	C
Q-3		Q-3	B	Q-3	C	Q-3	C
Q-4	C	Q-4	C	Q-4	B	Q-4	B
Q-5B	C	Q-5	C	Q-5	B	Q-5	C
Q-6	B	Q-6	B	Q-6	B	Q-6	B

Results:

Enhancement Potential	*Wetland has moderate potential for enhancement*
Education	**Wetland site is not appropriate for educational use**
Recreation	**Wetland is not appropriate or does not provide rec. opportunities**
Aesthetic Quality	*Wetland is not aesthetically pleasing*

Oregon Freshwater Wetland Assessment Methodology
Functions and Conditions Summary Sheet

Project:	Glenwood Area of Springfield LWI	**Wetland:**	**GS-5**
Location:	Glenwood, Oregon	**Approx. Area (acres):**	4.31
Date:	8/12/2009	**Wetland Types(s):**	PFO

Result:	**Wetland provides habitat for some wildlife species**	
Rationale:	One Cowardin class with > 5 species	No adjacent Water Quality limited streams
	Dominated by woody vegetation	Adjacent land is mostly developed
	Less than 0.5 acres of open water	Wetland buffer is less than 10%
Result:	**Fish habitat was not assessed for this wetland**	
Rationale:		
Result:	**Wetland's water-quality function is impacted or degraded**	
Rationale:	Primary water source is groundwater	Wetland is between 0.5 and 5 acres
	Can't determine if wetland floods or ponds	Adjacent land is mostly developed
	High wetland vegetation cover	No adjacent Water Quality Limited streams
Result:	**Wetland's hydrologic control is impacted or degraded**	
Rationale:	Wetland is not within 100 year floodplain	Dominated by woody vegetation
	Can't determine if wetland floods or ponds	Open space downslope of development
	Water has unrestricted flow out of wetland	Development upslope of wetland
Result:	*Wetland is potentially sensitive to future impacts*	
Rationale:		Adjacent land is mostly developed
	Water not taken out	Adjacent zoning is primarily development
	No adjacent Water Quality Limited streams	Dominated by woody vegetation
Result:	*Wetland has moderate potential for enhancement*	
Rationale:	Wetland functions are impacted or degraded	Wetland is less than 0.5 acres
	Primary water source is groundwater	Wetland buffer is less than 10%
		Potentially sensitive to future impacts
Result:	**Wetland site is not appropriate for educational use**	
Rationale:	No access allowed to wetland	No access point to wetland exists
	1 or 2 visible safety hazards	Wetland is not limited mobility accessible
	No access or observation of other habitats	
Result:	**Wetland is not appropriate or does not provide rec. opportunities**	
Rationale:	No access point to wetland exists	Wetland provides habitat for some wildlife
	No boat launching can be developed	No fishing is allowed
	No trails or viewing areas exist	No hunting is allowed
Result:	*Wetland is not aesthetically pleasing*	
Rationale:	One Cowardin class is visible	Wetland surrounded by landscaped areas
	Less than 25% of wetland can be seen	Unpleasent odors are always present
	Visual detractors present, can't be removed	Continuous traffic and natural noises occur

Oregon Freshwater Wetland Assessment Methodology

(Revised Edition, April 1996)

Wetland Assessment Summary Sheet

Pacific Habitat Services, Inc.

Project Name:	Glenwood Area of Springfield LWI	Wetland:	GS-6
Project Location:	Glenwood, Oregon	Wetland Type(s):	PEM

Date(s) of field work:	7/28/2009	Approx. Area (acres):	0.86
Onsite Assessment?:	Yes	Investigator(s):	ME/SE
Wetland Location:	South of E 22nd Avenue, north of Interstate 5		

Function and Condition Assessment Answers

Wildlife Habitat		Fish Habitat		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q	A	Q	A	Q	A	Q	A	Q	A
Q-1	B	Q-1		Q-1	B	Q-1	B	Q-1	B
Q-2	C	Q-2		Q-2	B	Q-2	B	Q-2	B
Q-3	A	Q-3		Q-3	A	Q-3	B	Q-3	C
Q-4	C	Q-4		Q-4	B	Q-4	C	Q-4	A
Q-5	B	Q-5		Q-5	A	Q-5	C	Q-5	A
Q-6	B	Q-6		Q-6	C	Q-6	A	Q-6	C
Q-7	A					Q-7	A		
Q-8	C								
Q-9A									
Q-9B	B								

Results:

Wildlife Habitat	**Wetland provides habitat for some wildlife species**
Fish Habitat	**Fish habitat was not assessed for this wetland**
Water Quality	**Wetland's water-quality function is impacted or degraded**
Hydrologic Control	**Wetland's hydrologic control is impacted or degraded**
Sensitivity to Impact	*Wetland is potentially sensitive to future impacts*

Function and Condition Assessment Answers

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q	A	Q	A	Q	A	Q	A
Q-1	A	Q-1	C	Q-1	B	Q-1	C
Q-2	C	Q-2	A	Q-2	C	Q-2	A
Q-3		Q-3	B	Q-3	C	Q-3	A
Q-4	B	Q-4	C	Q-4	B	Q-4	A
Q-5B	B	Q-5	B	Q-5	B	Q-5	A
Q-6	B	Q-6	B	Q-6	B	Q-6	B

Results:

Enhancement Potential	*Wetland has high enhancement potential*
Education	**Wetland site is not appropriate for educational use**
Recreation	**Wetland has the potential to provide recreational activities**
Aesthetic Quality	*Wetland is considered to be pleasing*

Oregon Freshwater Wetland Assessment Methodology
Functions and Conditions Summary Sheet

Project:	Glenwood Area of Springfield LWI	**Wetland:**	**GS-6**
Location:	Glenwood, Oregon	**Approx. Area (acres):**	0.86
Date:	7/28/2009	**Wetland Types(s):**	PEM

Result:	**Wetland provides habitat for some wildlife species**	
Rationale:	One Cowardin class with > 5 species	No adjacent Water Quality limited streams
	Herbaceous vegetation, no ponding	Adjacent land is mostly developed
	Less than 0.5 acres of open water	Wetland buffer is between 10% and 40%
Result:	**Fish habitat was not assessed for this wetland**	
Rationale:		
Result:	**Wetland's water-quality function is impacted or degraded**	
Rationale:	Primary water source is precipitation	Wetland is between 0.5 and 5 acres
	Can't determine if wetland floods or ponds	Adjacent land is mostly developed
	High wetland vegetation cover	No adjacent Water Quality Limited streams
Result:	**Wetland's hydrologic control is impacted or degraded**	
Rationale:	Wetland is not within 100 year floodplain	Herbaceous vegetation, no ponding
	Can't determine if wetland floods or ponds	Development downslope of wetland
	Water has unrestricted flow out of wetland	Development upslope of wetland
Result:	*Wetland is potentially sensitive to future impacts*	
Rationale:		Adjacent land is mostly developed
	Water not taken out	Adjacent zoning is primarily development
	No adjacent Water Quality Limited streams	Herbaceous vegetation, no ponding
Result:	*Wetland has high enhancement potential*	
Rationale:	Wetland functions are impacted or degraded	Wetland is between 0.5 and 5 acres
	Primary water source is precipitation	Wetland buffer is between 10% and 40%
		Potentially sensitive to future impacts
Result:	**Wetland site is not appropriate for educational use**	
Rationale:	No access allowed to wetland	Unmaintained public access within 250 feet
	No visible hazards to public	Wetland is not limited mobility accessible
	No access or observation of other habitats	
Result:	**Wetland has the potential to provide recreational activities**	
Rationale:	Unmaintained public access within 250 feet	Wetland provides habitat for some wildlife
	No boat launching can be developed	No fishing is allowed
	No trails or viewing areas exist	No hunting is allowed
Result:	*Wetland is considered to be pleasing*	
Rationale:	One Cowardin class is visible	Wetland surrounded by natural areas
	>50% of wetland can be seen	Natural odors present at wetland
	No visual detractors are present	Continuous traffic and natural noises occur

Oregon Freshwater Wetland Assessment Methodology

(Revised Edition, April 1996)

Wetland Assessment Summary Sheet

Pacific Habitat Services, Inc.

Project Name:	Glenwood Area of Springfield LWI	**Wetland:**	**WR-7**
Project Location:	Glenwood, Oregon	**Wetland Type(s):**	PFO

Date(s) of field work:	9/15/2009	**Approx. Area (acres):**	0.51
Onsite Assessment?:	Yes	**Investigator(s):**	ME/SE
Wetland Location:	Bewteen Interstate 5 & Franklin Boulevard		

Function and Condition Assessment Answers

Wildlife Habitat		Fish Habitat		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q	A	Q	A	Q	A	Q	A	Q	A
Q-1	B	Q-1		Q-1	C	Q-1	B	Q-1	B
Q-2	A	Q-2		Q-2	C	Q-2	C	Q-2	B
Q-3	C	Q-3		Q-3	A	Q-3	B	Q-3	C
Q-4	C	Q-4		Q-4	B	Q-4	C	Q-4	A
Q-5	A	Q-5		Q-5	A	Q-5	A	Q-5	C
Q-6	A	Q-6		Q-6	C	Q-6	C	Q-6	A
Q-7	A					Q-7	A		
Q-8	C								
Q-9A									
Q-9B	A								

Results:

Wildlife Habitat	**Wetland provides habitat for some wildlife species**
Fish Habitat	**Fish habitat was not assessed for this wetland**
Water Quality	**Wetland's water-quality function is impacted or degraded**
Hydrologic Control	**Wetland's hydrologic control is impacted or degraded**
Sensitivity to Impact	*Wetland is potentially sensitive to future impacts*

Function and Condition Assessment Answers

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q	A	Q	A	Q	A	Q	A
Q-1	A	Q-1	C	Q-1	C	Q-1	C
Q-2	B	Q-2	B	Q-2	C	Q-2	C
Q-3		Q-3	B	Q-3	C	Q-3	C
Q-4	B	Q-4	C	Q-4	B	Q-4	B
Q-5B	A	Q-5	C	Q-5	B	Q-5	A
Q-6	B	Q-6	B	Q-6	B	Q-6	A

Results:

Enhancement Potential	*Wetland has high enhancement potential*
Education	**Wetland site is not appropriate for educational use**
Recreation	**Wetland is not appropriate or does not provide rec. opportunities**
Aesthetic Quality	*Wetland is not aesthetically pleasing*

Oregon Freshwater Wetland Assessment Methodology
Functions and Conditions Summary Sheet

Project:	Glenwood Area of Springfield LWI	**Wetland:**	**WR-7**
Location:	Glenwood, Oregon	**Approx. Area (acres):**	0.51
Date:	9/15/2009	**Wetland Types(s):**	PFO

Result:	**Wetland provides habitat for some wildlife species**	
Rationale:	One Cowardin class with > 5 species	No adjacent Water Quality limited streams
	Dominated by woody vegetation	Adjacent land is mostly developed
	Less than 0.5 acres of open water	Wetland buffer is greater than 40%
Result:	**Fish habitat was not assessed for this wetland**	
Rationale:		
Result:	**Wetland's water-quality function is impacted or degraded**	
Rationale:	Primary water source is groundwater	Wetland is between 0.5 and 5 acres
	Wetland does not flood or pond	Adjacent land is mostly developed
	High wetland vegetation cover	No adjacent Water Quality Limited streams
Result:	**Wetland's hydrologic control is impacted or degraded**	
Rationale:	Wetland is not within 100 year floodplain	Dominated by woody vegetation
	Wetland does not flood or pond	Open space downslope of development
	Water has unrestricted flow out of wetland	Development upslope of wetland
Result:	*Wetland is potentially sensitive to future impacts*	
Rationale:	Stream not modified	Adjacent land is mostly developed
	Water not taken out	Adjacent zoning is mostly open space
	No adjacent Water Quality Limited streams	Dominated by woody vegetation
Result:	*Wetland has high enhancement potential*	
Rationale:	Wetland functions are impacted or degraded	Wetland is between 0.5 and 5 acres
	Primary water source is groundwater	Wetland buffer is greater than 40%
		Potentially sensitive to future impacts
Result:	**Wetland site is not appropriate for educational use**	
Rationale:	No access allowed to wetland	No access point to wetland exists
	1 or 2 visible safety hazards	Wetland is not limited mobility accessible
	No access or observation of other habitats	
Result:	**Wetland is not appropriate or does not provide rec. opportunities**	
Rationale:	No access point to wetland exists	Wetland provides habitat for some wildlife
	No boat launching can be developed	No fishing is allowed
	No trails or viewing areas exist	No hunting is allowed
Result:	*Wetland is not aesthetically pleasing*	
Rationale:	One Cowardin class is visible	Wetland surrounded by landscaped areas
	Less than 25% of wetland can be seen	Natural odors present at wetland
	Visual detractors present, can't be removed	Some traffic and natural noises are present

Appendix E

Locally Significant
Wetland Determination Sheets

Locally Significant Wetlands Criteria

ORS 197.279 (3)(b)

Project Name:	Glenwood Area of Springfield LWI	**Wetland:**	**GS-1**
Project Location:	Glenwood, Oregon	**Approx. Area (acres):**	0.47
Date:	10/7/2009	**Wetland Types(s):**	PSS

Exclusions : **This wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".**		
1 Is this wetland artificially created entirely from upland and:		
a. created for the purpose of controlling, storing, or maintaining stormwater		No
b. is used for active surface mining or as a log pond		No
c. is a ditch without a free and open connection to natural waters of the state		No
d. is less than 1 acre and created unintentionally from irrigation or construction		No
e. created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard		No
2 Is the wetland or portion of the wetland contaminated by hazardous substances, materials or wastes as per the conditions of ORS 141-86-350 1(b)		No
Exclusion criteria satisfied?		**No**

Mandatory Locally Significant Wetland Criteria : **This wetland is locally significant if "Yes" is the answer to any of the criteria below.**		
1 Does the wetland provide *diverse wildlife habitat* ?		No
2 Is the wetland's *fish habitat function intact* ?		No
3 Is the wetland's *water quality function intact* ?		No
4 Is the wetland's *hydrologic control function intact* ?		No
5 Is the wetland less than 1/4 mile from a water body listed by DEQ as a water quality limited water body (303(d) list)and is the wetland's *water quality function intact, or impacted or degraded* ?	Yes	
6 Does the wetland contain a rare plant community?		No
7 Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?		No
8 Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids and is the wetland's *fish habitat function intact, or impacted or degraded* ?	Yes	
Mandatory Locally Significant Wetland criteria satisfied ?	**Yes**	

Optional Locally Significant Wetland Criteria : **local governments may identify a wetland as significant if "Yes" is the answer to the criteria below**		
1 Does the wetland represent a locally unique native plant community and provides *diverse wildlife habitat or habitat for some species* or has a *intact, or impacted or degraded fish habitat function* or has a *intact, or impacted or degraded water quality function* or has a *intact, or impacted or degraded hydrologic control function* .		No
2 Is the wetland publicly owned and used by a school or organization and does the wetland provide *educational uses* ?		No
Optional Locally Significant Wetland criteria satisfied ?		**No**

Locally Significant Wetland

Locally Significant Wetlands Criteria

ORS 197.279 (3)(b)

Project Name:	Glenwood Area of Springfield LWI	**Wetland:**	**GS-2**
Project Location:	Glenwood, Oregon	**Approx. Area (acres):**	2.53
Date:	7/27/2009	**Wetland Types(s):**	PFO

Exclusions : **This wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".**		
1 Is this wetland artificially created entirely from upland and:		
a. created for the purpose of controlling, storing, or maintaining stormwater		No
b. is used for active surface mining or as a log pond		No
c. is a ditch without a free and open connection to natural waters of the state		No
d. is less than 1 acre and created unintentionally from irrigation or construction		No
e. created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard		No
2 Is the wetland or portion of the wetland contaminated by hazardous substances, materials or wastes as per the conditions of ORS 141-86-350 1(b)		No
Exclusion criteria satisfied?		**No**

Mandatory Locally Significant Wetland Criteria : **This wetland is locally significant if "Yes" is the answer to any of the criteria below.**		
1 Does the wetland provide *diverse wildlife habitat* ?		No
2 Is the wetland's *fish habitat function intact* ?		No
3 Is the wetland's *water quality function intact* ?		No
4 Is the wetland's *hydrologic control function intact* ?		No
5 Is the wetland less than 1/4 mile from a water body listed by DEQ as a water quality limited water body (303(d) list)and is the wetland's *water quality function intact, or impacted or degraded* ?	Yes	
6 Does the wetland contain a rare plant community?		No
7 Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?		No
8 Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids and is the wetland's *fish habitat function intact, or impacted or degraded* ?	Yes	
Mandatory Locally Significant Wetland criteria satisfied ?	**Yes**	

Optional Locally Significant Wetland Criteria : **local governments may identify a wetland as significant if "Yes" is the answer to the criteria below**		
1 Does the wetland represent a locally unique native plant community and provides *diverse wildlife habitat or habitat for some species* or has a *intact, or impacted or degraded fish habitat function* or has a *intact, or impacted or degraded water quality function* or has a *intact, or impacted or degraded hydrologic control function* .		No
2 Is the wetland publicly owned and used by a school or organization and does the wetland provide *educational uses* ?		No
Optional Locally Significant Wetland criteria satisfied ?		**No**

Locally Significant Wetland

Locally Significant Wetlands Criteria

ORS 197.279 (3)(b)

Project Name:	Glenwood Area of Springfield LWI	**Wetland:**	**GS-3**
Project Location:	Glenwood, Oregon	**Approx. Area (acres):**	3.72
Date:	8/12/2009	**Wetland Types(s):**	PSS/PUB

Exclusions : **This wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".**		
1 Is this wetland artificially created entirely from upland and:		
a. created for the purpose of controlling, storing, or maintaining stormwater		No
b. is used for active surface mining or as a log pond		No
c. is a ditch without a free and open connection to natural waters of the state		No
d. is less than 1 acre and created unintentionally from irrigation or construction		No
e. created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard		No
2 Is the wetland or portion of the wetland contaminated by hazardous substances, materials or wastes as per the conditions of ORS 141-86-350 1(b)		No
Exclusion criteria satisfied?		**No**

Mandatory Locally Significant Wetland Criteria : **This wetland is locally significant if "Yes" is the answer to any of the criteria below.**		
1 Does the wetland provide *diverse wildlife habitat* ?		No
2 Is the wetland's *fish habitat function intact* ?		No
3 Is the wetland's *water quality function intact* ?		No
4 Is the wetland's *hydrologic control function intact* ?		No
5 Is the wetland less than 1/4 mile from a water body listed by DEQ as a water quality limited water body (303(d) list)and is the wetland's *water quality function intact, or impacted or degraded* ?	Yes	
6 Does the wetland contain a rare plant community?		No
7 Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?		No
8 Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids and is the wetland's *fish habitat function intact, or impacted or degraded* ?	Yes	
Mandatory Locally Significant Wetland criteria satisfied ?	**Yes**	

Optional Locally Significant Wetland Criteria : **local governments may identify a wetland as significant if "Yes" is the answer to the criteria below**		
1 Does the wetland represent a locally unique native plant community and provides *diverse wildlife habitat or habitat for some species* or has a *intact, or impacted or degraded fish habitat function* or has a *intact, or impacted or degraded water quality function* or has a *intact, or impacted or degraded hydrologic control function* .		No
2 Is the wetland publicly owned and used by a school or organization and does the wetland provide *educational uses* ?		No
Optional Locally Significant Wetland criteria satisfied ?		**No**

Locally Significant Wetland

Locally Significant Wetlands Criteria

ORS 197.279 (3)(b)

Project Name:	Glenwood Area of Springfield LWI	**Wetland:**	**GS-4**
Project Location:	Glenwood, Oregon	**Approx. Area (acres):**	0.87
Date:	7/28/2009	**Wetland Types(s):**	PEM

Exclusions : **This wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".**		
1 Is this wetland artificially created entirely from upland and:		
a. created for the purpose of controlling, storing, or maintaining stormwater		No
b. is used for active surface mining or as a log pond		No
c. is a ditch without a free and open connection to natural waters of the state		No
d. is less than 1 acre and created unintentionally from irrigation or construction		No
e. created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard		No
2 Is the wetland or portion of the wetland contaminated by hazardous substances, materials or wastes as per the conditions of ORS 141-86-350 1(b)		No
Exclusion criteria satisfied?		**No**

Mandatory Locally Significant Wetland Criteria : **This wetland is locally significant if "Yes" is the answer to any of the criteria below.**		
1 Does the wetland provide *diverse wildlife habitat* ?		No
2 Is the wetland's *fish habitat function intact* ?		No
3 Is the wetland's *water quality function intact* ?		No
4 Is the wetland's *hydrologic control function intact* ?		No
5 Is the wetland less than 1/4 mile from a water body listed by DEQ as a water quality limited water body (303(d) list)and is the wetland's *water quality function intact, or impacted or degraded* ?	Yes	
6 Does the wetland contain a rare plant community?		No
7 Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?		No
8 Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids and is the wetland's *fish habitat function intact, or impacted or degraded* ?		No
Mandatory Locally Significant Wetland criteria satisfied ?	**Yes**	

Optional Locally Significant Wetland Criteria : **local governments may identify a wetland as significant if "Yes" is the answer to the criteria below**		
1 Does the wetland represent a locally unique native plant community and provides *diverse wildlife habitat or habitat for some species* or has a *intact, or impacted or degraded fish habitat function* or has a *intact, or impacted or degraded water quality function* or has a *intact, or impacted or degraded hydrologic control function* .		No
2 Is the wetland publicly owned and used by a school or organization and does the wetland provide *educational uses* ?		No
Optional Locally Significant Wetland criteria satisfied ?		**No**

Locally Significant Wetland

Locally Significant Wetlands Criteria

ORS 197.279 (3)(b)

Project Name:	Glenwood Area of Springfield LWI	**Wetland:**	**GS-5**
Project Location:	Glenwood, Oregon	**Approx. Area (acres):**	4.31
Date:	8/12/2009	**Wetland Types(s):**	PFO

Exclusions : **This wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".**		
1 Is this wetland artificially created entirely from upland and:		
a. created for the purpose of controlling, storing, or maintaining stormwater		No
b. is used for active surface mining or as a log pond		No
c. is a ditch without a free and open connection to natural waters of the state		No
d. is less than 1 acre and created unintentionally from irrigation or construction		No
e. created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard		No
2 Is the wetland or portion of the wetland contaminated by hazardous substances, materials or wastes as per the conditions of ORS 141-86-350 1(b)		No
Exclusion criteria satisfied?		**No**

Mandatory Locally Significant Wetland Criteria : **This wetland is locally significant if "Yes" is the answer to any of the criteria below.**		
1 Does the wetland provide *diverse wildlife habitat* ?		No
2 Is the wetland's *fish habitat function intact* ?		No
3 Is the wetland's *water quality function intact* ?		No
4 Is the wetland's *hydrologic control function intact* ?		No
5 Is the wetland less than 1/4 mile from a water body listed by DEQ as a water quality limited water body (303(d) list)and is the wetland's *water quality function intact, or impacted or degraded* ?		No
6 Does the wetland contain a rare plant community?		No
7 Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?		No
8 Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids and is the wetland's *fish habitat function intact, or impacted or degraded* ?		No
Mandatory Locally Significant Wetland criteria satisfied ?		**No**

Optional Locally Significant Wetland Criteria : **local governments may identify a wetland as significant if "Yes" is the answer to the criteria below**		
1 Does the wetland represent a locally unique native plant community and provides *diverse wildlife habitat or habitat for some species* or has a *intact, or impacted or degraded fish habitat function* or has a *intact, or impacted or degraded water quality function* or has a *intact, or impacted or degraded hydrologic control function* .		No
2 Is the wetland publicly owned and used by a school or organization and does the wetland provide *educational uses* ?		No
Optional Locally Significant Wetland criteria satisfied ?		**No**

Does not satisfy the criteria, Not a Locally Significant Wetland

Locally Significant Wetlands Criteria

ORS 197.279 (3)(b)

Project Name:	Glenwood Area of Springfield LWI	**Wetland:**	**GS-6**
Project Location:	Glenwood, Oregon	**Approx. Area (acres):**	0.86
Date:	7/28/2009	**Wetland Types(s):**	PEM

Exclusions **: This wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".**		
1 Is this wetland artificially created entirely from upland and:		
a. created for the purpose of controlling, storing, or maintaining stormwater		No
b. is used for active surface mining or as a log pond		No
c. is a ditch without a free and open connection to natural waters of the state		No
d. is less than 1 acre and created unintentionally from irrigation or construction		No
e. created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard		No
2 Is the wetland or portion of the wetland contaminated by hazardous substances, materials or wastes as per the conditions of ORS 141-86-350 1(b)		No
Exclusion criteria satisfied?		**No**

Mandatory Locally Significant Wetland Criteria **: This wetland is locally significant if "Yes" is the answer to any of the criteria below.**		
1 Does the wetland provide *diverse wildlife habitat* ?		No
2 Is the wetland's *fish habitat function intact* ?		No
3 Is the wetland's *water quality function intact* ?		No
4 Is the wetland's *hydrologic control function intact* ?		No
5 Is the wetland less than 1/4 mile from a water body listed by DEQ as a water quality limited water body (303(d) list)and is the wetland's *water quality function intact, or impacted or degraded* ?		No
6 Does the wetland contain a rare plant community?		No
7 Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?		No
8 Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids and is the wetland's *fish habitat function intact, or impacted or degraded* ?		No
Mandatory Locally Significant Wetland criteria satisfied ?		**No**

Optional Locally Significant Wetland Criteria **: local governments may identify a wetland as significant if "Yes" is the answer to the criteria below**		
1 Does the wetland represent a locally unique native plant community and provides *diverse wildlife habitat or habitat for some species* or has a *intact, or impacted or degraded fish habitat function* or has a *intact, or impacted or degraded water quality function* or has a *intact, or impacted or degraded hydrologic control function* .		No
2 Is the wetland publicly owned and used by a school or organization and does the wetland provide *educational uses* ?		No
Optional Locally Significant Wetland criteria satisfied ?		**No**

Does not satisfy the criteria, Not a Locally Significant Wetland

Locally Significant Wetlands Criteria

ORS 197.279 (3)(b)

Project Name:	Glenwood Area of Springfield LWI	**Wetland:**	**WR-7**
Project Location:	Glenwood, Oregon	**Approx. Area (acres):**	0.51
Date:	9/15/2009	**Wetland Types(s):**	PFO

Exclusions : **This wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".**		
1 Is this wetland artificially created entirely from upland and:		
a. created for the purpose of controlling, storing, or maintaining stormwater		No
b. is used for active surface mining or as a log pond		No
c. is a ditch without a free and open connection to natural waters of the state		No
d. is less than 1 acre and created unintentionally from irrigation or construction		No
e. created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard		No
2 Is the wetland or portion of the wetland contaminated by hazardous substances, materials or wastes as per the conditions of ORS 141-86-350 1(b)		No
Exclusion criteria satisfied?		**No**

Mandatory Locally Significant Wetland Criteria : **This wetland is locally significant if "Yes" is the answer to any of the criteria below.**		
1 Does the wetland provide *diverse wildlife habitat* ?		No
2 Is the wetland's *fish habitat function intact* ?		No
3 Is the wetland's *water quality function intact* ?		No
4 Is the wetland's *hydrologic control function intact* ?		No
5 Is the wetland less than 1/4 mile from a water body listed by DEQ as a water quality limited water body (303(d) list)and is the wetland's *water quality function intact, or impacted or degraded* ?	Yes	
6 Does the wetland contain a rare plant community?		No
7 Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?		No
8 Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids and is the wetland's *fish habitat function intact, or impacted or degraded* ?		No
Mandatory Locally Significant Wetland criteria satisfied ?	**Yes**	

Optional Locally Significant Wetland Criteria : **local governments may identify a wetland as significant if "Yes" is the answer to the criteria below**		
1 Does the wetland represent a locally unique native plant community and provides *diverse wildlife habitat or habitat for some species* or has a *intact, or impacted or degraded fish habitat function* or has a *intact, or impacted or degraded water quality function* or has a *intact, or impacted or degraded hydrologic control function* .		No
2 Is the wetland publicly owned and used by a school or organization and does the wetland provide *educational uses* ?		No
Optional Locally Significant Wetland criteria satisfied ?		**No**

Locally Significant Wetland

Appendix F

OFWAM Field Forms and Summary Tables

WETLAND CHARACTERIZATION - WATERSHED SETTING

QUESTIONS 1-14*
OFWAM

Drainage Basin / Watershed Name	Square Miles	Average Slope	Stream Flow Modified	Active Irrigation or Diking Upstream	Dominant Land Use (Upstream)	Streams/Water Quality Limited	Non-Point Sources	Fisheries	S/T/E Fish Species	Wildlife Species	S/T/E Plant or Wildlife Species	Natural Corridor /Fish & Wildlife	Landscape Features/ Both Ends Corridor
Q.1	Q.2	Q.3	Q.4	Q.5	Q.6	Q.7	Q.8	Q.9	Q.10	Q.11	Q.12	Q.13	Q.14
Upper Willamette / Glenwood Slough	1.06	33%	A. tributaries are modified	b. No	a. Urban	a. the Willamette River is listed as water quality limited	A. The Oregon water quality index report for the portion of the Willamette River that goes through Springfield (next City to Glenwood) rates as excellent.	a. cold water species; cutthroat b. warm water species c. anadromous	a. yes, Chinook salmon, Coho salmon, Cutthroat trout, Steelhead	a. migratory birds c. nesting birds	a. yes, potential listed species in Lane County, which could potentially be in the Glenwood area include: Marbled murrelet, Snowy plover, brown pelican, Northern spotted owl, Fender's blue butterfly, Oregon silverspot butterfly, Kincaid's lupine, Willamette daisy, and Bradshaw's desert parsley	Wildlife and fish b. The natural areas are fragmented, but species movement is still possible.	b. The NW end has a natural habitat area and the SE end is developed.

* Questions 1 through 14 apply to all wetlands within the LWI study area and Questions 15 through 40 are provided for each wetland on the Wetland Characterization – Field Form.

Wetland Characterization -- Field Form

Project Name: Glenwood LWI

Wetland Code: GS-1

Watershed Setting: (Questions 1-14) See Attached Table

Wetland Structure and Relation to Surrounding		Wetland Habitat		Fisheries Habitat		Wetland Hydrology	
Q	A	Q	A	Q	A	Q	A
Q-15		Q-21		Q-29	C	Q-36	C
1	B	1	—	Streams connected to the Wetland		Q-37	C
2	A	2	—			Q-38	B
3	A	3	A	Q	A	Q-39	
4	C	4	—	Q-30	C	Q-40	A
5	—	Q-22	A	Q-31	A		
Q-16	C	Q-23	A	Q-32	C		
Q-17	B	Q-24	C	Lakes and Ponds			
Q-18	A	Q-25	N/A				
Q-19	B	Q-26	B	Q	A		
Q-20		Q-27	A	Q-33	A		
1	A	Q-28	C	Q-34	C		
2	A			Q-35	C		
3	A						
4	C						
5	—						

Wetland Characterization -- Field Form

Project Name: Glenwood LWI

Wetland Code: GS-2

Watershed Setting: (Questions 1-14) See Attached Table

Wetland Structure and Relation to Surrounding		Wetland Habitat		Fisheries Habitat		Wetland Hydrology	
Q	A	Q	A	Q	A	Q	A
Q-15		Q-21		Q-29	C	Q-36	C
1	B	1	—	Streams connected to the Wetland		Q-37	B
2	A	2	—			Q-38	B
3	A	3	—	Q	A	Q-39	
4	C	4	A	Q-30	B	Q-40	A
5	—	Q-22	A	Q-31	B		
Q-16	A	Q-23	A	Q-32	C		
Q-17	B	Q-24	C	Lakes and Ponds			
Q-18	A	Q-25	N/A				
Q-19	B	Q-26	A	Q	A		
Q-20		Q-27	A	Q-33	B		
1	A	Q-28	C	Q-34	C		
2	A			Q-35	B		
3	A						
4	C						
5	—						

Wetland Characterization -- Field Form

Project Name: Glenwood LWI

Wetland Code: GS-3

Watershed Setting: (Questions 1-14) See Attached Table

Wetland Structure and Relation to Surrounding		Wetland Habitat		Fisheries Habitat		Wetland Hydrology	
Q	A	Q	A	Q	A	Q	A
Q-15		Q-21		Q-29	C	Q-36	C
1	A	1	A	Streams connected to the Wetland		Q-37	A
2	A	2	—			Q-38	C
3	A	3	D	Q	A	Q-39	
4	C	4	—	Q-30	C	Q-40	A
5	—	Q-22	A	Q-31	A		
Q-16	A	Q-23	B	Q-32	B		
Q-17	B	Q-24	B	Lakes and Ponds			
Q-18	A	Q-25	N/A				
Q-19	B	Q-26	B	Q	A		
Q-20		Q-27	C	Q-33	A		
1	A	Q-28	B	Q-34	B		
2	A			Q-35	C		
3	A						
4	C						
5	—						

Wetland Characterization -- Field Form

Project Name: Glenwood LWI

Wetland Code: GS-4

Watershed Setting: (Questions 1-14) See Attached Table

Wetland Structure and Relation to Surrounding		Wetland Habitat		Fisheries Habitat		Wetland Hydrology	
Q	**A**	**Q**	**A**	**Q**	**A**	**Q**	**A**
Q-15		Q-21		Q-29	C	Q-36	C
1	A	1	—	Streams connected to the Wetland		Q-37	A
2	A	2	A			Q-38	C
3	A	3	—	**Q**	**A**	Q-39	
4	B	4	—	Q-30		Q-40	B
5	—	Q-22	A	Q-31			
Q-16	A	Q-23	C	Q-32			
Q-17	C	Q-24	C	Lakes and Ponds			
Q-18	A	Q-25	N/A				
Q-19	B	Q-26	C	**Q**	**A**		
Q-20		Q-27	A	Q-33			
1	A	Q-28	C	Q-34			
2	A			Q-35			
3	A						
4	C						
5	—						

Wetland Characterization -- Field Form

Project Name: Glenwood LWI

Wetland Code: GS-5

Watershed Setting: (Questions 1-14) See Attached Table

Wetland Structure and Relation to Surrounding		Wetland Habitat		Fisheries Habitat		Wetland Hydrology	
Q	A	Q	A	Q	A	Q	A
Q-15		Q-21		Q-29		Q-36	C
1	C	1	—	Streams connected to the Wetland		Q-37	C
2	A	2	—			Q-38	C
3	A	3	—	Q	A	Q-39	
4	C	4	A	Q-30		Q-40	B
5	A railroad tracks	Q-22	A	Q-31			
Q-16	C	Q-23	A	Q-32			
Q-17	C	Q-24	C	Lakes and Ponds			
Q-18	C	Q-25	N/A				
Q-19	B	Q-26	C	Q	A		
Q-20		Q-27	C	Q-33			
1	A	Q-28	C	Q-34			
2	A.			Q-35			
3	A						
4	C						
5	—						

Wetland Characterization -- Field Form

Project Name: Glenwood LWI

Wetland Code: GS-6

Watershed Setting: (Questions 1-14) See Attached Table

Wetland Structure and Relation to Surrounding		Wetland Habitat		Fisheries Habitat		Wetland Hydrology	
Q	A	Q	A	Q	A	Q	A
Q-15		Q-21		Q-29	C	Q-36	C
1	C	1	–	Streams connected to the Wetland		Q-37	A
2	A	2	A			Q-38	C
3	A	3	–	Q	A	Q-39	
4	A	4	–	Q-30	C	Q-40	B
5	–	Q-22	A	Q-31	C		
Q-16	A	Q-23	C	Q-32	C		
Q-17	B	Q-24	C	Lakes and Ponds			
Q-18	B	Q-25	N/A				
Q-19	B	Q-26	B	Q	A		
Q-20		Q-27	B	Q-33	C		
1	A	Q-28	C	Q-34	C		
2	A			Q-35	C		
3	A						
4	C						
5	–						

Wetland Characterization -- Field Form

Project Name: Glenwood LWI

Wetland Code: WR-7

Watershed Setting: (Questions 1-14) See Attached Table

Wetland Structure and Relation to Surrounding		Wetland Habitat		Fisheries Habitat		Wetland Hydrology	
Q	A	Q	A	Q	A	Q	A
Q-15		Q-21		Q-29		Q-36	C
1	C	1	–	Streams connected to the Wetland		Q-37	C
2	A	2	–			Q-38	C
3	A	3	–	Q	A	Q-39	
4	A	4	A	Q-30		Q-40	B
5	–	Q-22	A	Q-31			
Q-16	A	Q-23	A	Q-32			
Q-17	B	Q-24	C	Lakes and Ponds			
Q-18	A	Q-25	N/A				
Q-19	B	Q-26	A	Q	A		
Q-20		Q-27	A	Q-33			
1	C	Q-28	C	Q-34			
2	A			Q-35			
3	A						
4	A						
5	–						

Appendix G

Riparian Data Forms

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: West of I-5, south of Franklin Blvd.

Date: 7/28/2009

Riparian Code: R-GS-1

On-site: ☒ **Off-Site:** ☐

Reach Length: 1,681 feet

Investigators: SE - ME

Hydrologic Basin: Glenwood Slough

WATER RESOURCE INFORMATION

Water Resource:				
	Stream/River:	x	**Width:** 120	feet
	Lake/Pond:		**Width:**	feet
	Wetland:	x	**Width:** 50	feet

LWI Wetland Code: GS-2

Water present year-round: **Yes** ☐ **No** ☒

Are salmonids present in the adjacent water resource? **Yes** ☐ **No** ☒

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

Within FEMA-mapped 100-year floodplain: **Yes** ☐ **No** ☒

Mapped soil series: Chehalis silty clay loam

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☒
Commercial/Indus.:	☒	**Undeveloped:**	☐
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Populus trichocarpa	*Festuca arundinacea*
Cytisus scoparius	*Plantago lanceolata*
Rubus discolor	*Daucus carota*
Robinia pseudoacacia	*Aira caryophyllea*
Fraxinus latifolia	*Lathyrus sp.*
Cornus stolonifera	*Cirsium arvense*
Salix species	*mixed grasses (unidentified)*

1 meter = 3.2 feet

RIPARIAN CODE: **R-GS-1**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☒ >5:1 (20%) ☐

Extent of impervious surface within the riparian area. (Question 4)

<10% ☐ 10% - 25% ☒ >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☐ No ☒

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☒ No ☐

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☒ 10% - 40% ☐ <10% ☐

Degree of development or human caused disturbance. (Question 19)

<25% ☐ 25% - 75% ☒ >75% ☐

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☒ No ☐

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☒ No or no flood prone area present ☐

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☒ 2 layers ☐ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-1

Date: 7/28/2009 **Investigators:** SE - ME

Dominant tree species: *Populus trichocarpa* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 120/50 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: Drainage through wetland GS-2. The eastern portions of the drainage appear to be intermittent as no hydrology was identified during the July 2009 site visit. The western portion, just west of I-5 is perennial as flowing water was observed during an October 2009 site visit.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-1

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**2**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**2**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**2**
b. High, severe, very high	1 pts	

Total Points: **12**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-1

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**3**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**3**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**3**
b. Yes	1 pts	

Total Points: **9**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-1

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-1

WILDLIFE HABITAT

12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

		Score
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**3**
c. 1 layer, or unvegetated	1 pt	

13. What is the dominant vegetation layer in the riparian area?

a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	

14. Does woody vegetation hang over the edge of the water?

a. Yes	2 pts	**2**
b. No	1 pt	

15. Is large woody debris present within the riparian area?

a. Yes	3 pts	**3**
b. No	1 pt	

16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?

a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**3**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-1

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**1**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**3**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**2**
c. Greater than 75%	1 pt	
Total Points:		**20**

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION IS: **HIGH**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: ODOT ROW located E of I-5, W of Judkins Dedicated Rd.

Date: 7/27/2009

Riparian Code: R-GS-2 Left bank

On-site: ☒ **Off-Site:** ☐

Reach Length: 1,740 feet

Investigators: SE - ME

Hydrologic Basin: Glenwood Slough

WATER RESOURCE INFORMATION

Water Resource:				
	Stream/River:	x	**Width:** 2-5	feet
	Lake/Pond:		**Width:**	feet
	Wetland:		**Width:**	feet

LWI Wetland Code: GS-4

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☐ **No** ☒

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

Within FEMA-mapped 100-year floodplain: **Yes** ☐ **No** ☒

Mapped soil series: Dixonville-Philomath-Hazelair complex, Pengra silt loam, Pengra-Urban Land complex

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☒
Commercial/Indus.:	☒	**Undeveloped:**	☐
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Acer macrophyllum	*Dipsacus sylvestris*
Rubus discolor	*Hypericum perforatum*
Cytisus scoparius	*Festuca arundinacea*
Fraxinus latifolia	*Juncus effusus*
Symphoricarpos albus	*mowed grasses (unidentified)*
Salix lasiandra	*Lathyrus sp.*
Populus trichocarpa	

1 meter = 3.2 feet

RIPARIAN CODE:	**R-GS-2 Left bank**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%) ☒

Extent of impervious surface within the riparian area. (Question 4)

<10% ☐ 10% - 25% >25% ☒

Is the reach constricted by man-made features? (Question 8)

Yes ☐ No ☒

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☐ Herbaceous vegetation ☒ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☐ 10% - 40% ☐ <10% ☒

Degree of development or human caused disturbance. (Question 19)

<25% ☐ 25% - 75% ☐ >75% ☒

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☐ high, very high, severe ☒

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☐ No ☒

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☐ No or no flood prone area present ☒

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☒ 2 layers ☐ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-2 Left Bank

Date: 7/28/2009 **Investigators:** SE - ME

Dominant tree species: *Populus trichocarpa* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 120/40 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: R-GS-2 is bordered to the west by I-5. The northern portion is culverted for approximately 462 feet before it daylights under the I-5 bridge before continuing north to the Willamette River. There is an unnamed perennial drainage that begins on the west side of I-5 and is culverted under the freeway where it converges with the culverted portion of R-GS-2. Oregon Department of Fish and Wildlife representative, Jeff Ziller, said this drainage has Cuttroat trout. The left & right bank are similar but the average slope of the left bank is 20% and the impervious surface is >25%.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-2
Left bank

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**1**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**2**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**1**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**1**
b. High, severe, very high	1 pts	
Total Points:		**8**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-2
Left bank

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**1**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**1**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**3**
b. Yes	1 pts	

Total Points: **5**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-2
Left bank

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**2**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **7**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-2
Left bank

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**3**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**2**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**1**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**1**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-2
Left bank

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**1**
c. Greater than 75%	1 pt	

Total Points: **14**

Function: **High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)**

FUNCTION IS: **MEDIUM**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: ODOT ROW located E of I-5, W of Judkins Dedicated Rd.

Date: 7/27/2009

Riparian Code: R-GS-2 Right bank

On-site: ☒ **Off-Site:** ☐

Reach Length: 1,740

Investigators: SE - ME

Hydrologic Basin: Glenwood Slough

WATER RESOURCE INFORMATION

Water Resource:				
	Stream/River:	x	**Width:** 2-5	feet
	Lake/Pond:		**Width:**	feet
	Wetland:		**Width:**	feet

LWI Wetland Code: GS-4

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☐ **No** ☒

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

Within FEMA-mapped 100-year floodplain: **Yes** ☐ **No** ☒

Mapped soil series: Dixonville-Philomath-Hazelair complex, Pengra silt loam, Pengra-Urban Land complex

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☒
Commercial/Indus.:	☒	**Undeveloped:**	☐
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Acer macrophyllum	*Dipsacus sylvestris*
Rubus discolor	*Hypericum perforatum*
Cytisus scoparius	*Festuca arundinacea*
Fraxinus latifolia	*Juncus effusus*
Symphoricarpos albus	*mowed grasses (unidentified)*
Salix lasiandra	*Lathyrus sp.*
Populus trichocarpa	

1 meter = 3.2 feet

RIPARIAN CODE:	**R-GS-2 Right bank**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☒ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%) ☐

Extent of impervious surface within the riparian area. (Question 4)

<10% ☐ 10% - 25% ☒ >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☐ No ☒

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☐ Herbaceous vegetation ☒ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☐ 10% - 40% ☐ <10% ☒

Degree of development or human caused disturbance. (Question 19)

<25% ☐ 25% - 75% ☐ >75% ☒

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☐ high, very high, severe ☒

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☐ No ☒

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☐ No or no flood prone area present ☒

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☒ 2 layers ☐ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-2 Right bank

Date: 7/28/2009 **Investigators:** SE - ME

Dominant tree species: *Populus trichocarpa* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 120/75 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: R-GS-2 is bordered to the west by I-5. The northern portion is culverted for approximately 462 feet before it daylights under the I-5 bridge before continuing north to the Willamette River. There is an unnamed perennial drainage that begins on the west side of I-5 and is culverted under the freeway where it converges with the culverted portion of R-GS-2. Oregon Department of Fish and Wildlife representative, Jeff Ziller, said this drainage has Cuttroat trout. The left & right bank are similar but the average slope of the right bank is 10% and the impervious surface is between 10-25%.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-2
Right bank

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**3**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**2**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**2**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**1**
b. High, severe, very high	1 pts	
Total Points:		**11**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-2
Right bank

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**1**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**1**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**3**
b. Yes	1 pts	
Total Points:		**5**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-2
Right bank

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**2**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **7**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-2
Right bank

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**3**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**2**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**1**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**1**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-2
Right bank

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**1**
c. Greater than 75%	1 pt	

Total Points: **14**

Function: **High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)**

FUNCTION IS: **MEDIUM**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: Behind the Eco Sort building
Portion just E of I-5

Date: 8/12/2009

Riparian Code: R-GS-3 Left bank

On-site: ☒ **Off-Site:** ☒

Reach Length: 2,706 feet

Investigators: SE-ME

Hydrologic Basin: Glenwood Slough

WATER RESOURCE INFORMATION

Water Resource:				
	Stream/River:	X	**Width:** 50-75	feet
	Lake/Pond:		**Width:**	feet
	Wetland:		**Width:**	feet

LWI Wetland Code: GS-1, GS-3

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☐ **No** ☒

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

Within FEMA-mapped 100-year floodplain: **Yes** ☐ **No** ☐

Mapped soil series: Chehalis silty clay loam, Pengra-Urban Land complex

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☐
Commercial/Indus.:	☒	**Undeveloped:**	☒
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Cornus stolonifera	
Acer macrophyllum	
Rubus discolor	
Pseudotsuga menziesii	

1 meter = 3.2 feet

RIPARIAN CODE:	**R-GS-3 Left bank**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☒ >5:1 (20%) ☐

Extent of impervious surface within the riparian area. (Question 4)

<10% ☒ 10% - 25% ☐ >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☒ No ☐

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☒ 10% - 40% ☐ <10% ☐

Degree of development or human caused disturbance. (Question 19)

<25% ☒ 25% - 75% ☐ >75% ☐

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☐ No ☒

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☐ No or no flood prone area present ☒

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☐ 2 layers ☒ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-3 Left bank

Date: 8/12/2009 **Investigators:** SE-ME

Dominant tree species: *Acer macrophyllum* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 90/~100 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: Riparian reach constricted on the right be development. Well-developed tree canopy on left. The eastern and western portions of the drainage were accessed during the site visit; however, there was no access to the central portion. The left and right banks are similar with the exceptio of the left bank extent of impervious surface in the riparian area is <10%, there is not large woody debris, and the degree of development of human caused disturbance is <25%.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-3
Left bank

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**2**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**3**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**2**
b. High, severe, very high	1 pts	

Total Points: **13**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-3
Left bank

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**1**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**1**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**1**
b. Yes	1 pts	

Total Points: **3**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **LOW**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-3
Left bank

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-3
Left bank

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**2**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**1**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**3**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-3
Left bank

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**3**
c. Greater than 75%	1 pt	

Total Points: **18**

Function: **High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)**

FUNCTION IS: **MEDIUM**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: Behind the Eco Sort building
Portion just E of I-5

Date: 8/12/2009

Riparian Code: R-GS-3 Right bank

On-site: ☒ **Off-Site:** ☒

Reach Length: 2,706 feet

Investigators: SE-ME

Hydrologic Basin: Glenwood Slough

WATER RESOURCE INFORMATION

Water Resource:	**Stream/River:**	X	**Width:** 50-75	feet
	Lake/Pond:		**Width:**	feet
	Wetland:		**Width:**	feet

LWI Wetland Code: GS-1, GS-3

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☐ **No** ☒

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

Within FEMA-mapped 100-year floodplain: **Yes** ☐ **No** ☐

Mapped soil series: Chehalis silty clay loam, Pengra-Urban Land complex

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☐
Commercial/Indus.:	☒	**Undeveloped:**	☒
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Corylus cornuta	*Solanum dulcamara*
Arbutus menziesii	*Heracleum lanatum*
Symphoricarpos albus	*Solanum nugrum*
Betula pendula	*Cirsium arvense*
Rhus diversiloba	*Dipsacus sylvestris*
Robina pseudoacacia	*Epilobium watsonii*
Fraxinus latifolia	*Cirsium vulgare*

1 meter = 3.2 feet

RIPARIAN CODE:	**R-GS-3 Right bank**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☒ >5:1 (20%) ☐

Extent of impervious surface within the riparian area. (Question 4)

<10% ☐ 10% - 25% ☒ >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☒ No ☐

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☒ No ☐

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☒ 10% - 40% ☐ <10% ☐

Degree of development or human caused disturbance. (Question 19)

<25% ☐ 25% - 75% ☒ >75% ☐

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☐ No ☒

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☐ No or no flood prone area present ☒

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☐ 2 layers ☒ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-3 Right bank

Date: 8/12/2009 **Investigators:** SE-ME

Dominant tree species: *Acer macrophyllum* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 90/30-60 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: Riparian reach constricted on the right be development. Well-developed tree canopy on left. The eastern and western portions of the drainage were accessed during the site visit; however, there was no access to the central portion. The left and right banks are similar with the exceptio of the right bank extent of impervious surface in the riparian area is 10-25%, there is large woody debris, and the degree of development of human caused disturbance is 25-75%.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-3
Right bank

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**2**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**2**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**2**
b. High, severe, very high	1 pts	
Total Points:		**12**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-3
Right bank

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**1**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**1**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**1**
b. Yes	1 pts	

Total Points: **3**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **LOW**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-3
Right bank

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-3
Right bank

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**2**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**3**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**3**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-3
Right bank

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**2**
c. Greater than 75%	1 pt	

Total Points: **19**

Function: **High (19-23 pts)** **Medium (13-18 pts)** **Low (8-12 pts)**

FUNCTION IS: **HIGH**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: Viewed N of fenceline b/w GS-4 & the Fed Ex parking lot

Date: 7/27/2009

Riparian Code: R-GS-4 Left bank

On-site: ☒ **Off-Site:** ☐

Reach Length: 780 feet

Investigators: SE - ME

Hydrologic Basin: Glenwood Slough

WATER RESOURCE INFORMATION

Water Resource:				
Stream/River:		**Width:**		feet
Lake/Pond:	x	**Width:**	50 - 75	feet
Wetland:		**Width:**		feet

LWI Wetland Code: GS-3

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☐ **No** ☒

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

Within FEMA-mapped 100-year floodplain: **Yes** ☐ **No** ☒

Mapped soil series: Chehalis silty clay loam, Chehalis-Urban Land complex

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☐
Commercial/Indus.:	☒	**Undeveloped:**	☒
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Populus trichocarpa	*Echinocystis lobata*
Pseudotsuga menziesii	*Solanum dulcamara*
Rubus discolor	
Prunus virginiana	
Fraxinus latifolia	
Acer macrophyllum	
Holodiscus discolor	

1 meter = 3.2 feet

RIPARIAN CODE:	**R-GS-4 Left bank**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☒ >5:1 (20%) ☐

Extent of impervious surface within the riparian area. (Question 4)

<10% ☒ 10% - 25% ☐ >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☐ No ☒

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☒ No ☐

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☒ 10% - 40% ☐ <10% ☐

Degree of development or human caused disturbance. (Question 19)

<25% ☒ 25% - 75% ☐ >75% ☐

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☐ No ☒

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☐ No or no flood prone area present ☒

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☐ 2 layers ☒ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-4 Left bank

Date: 7/28/2009 **Investigators:** SE - ME

Dominant tree species: *Pseudotsuga menziesii* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 120/50-75 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: Pond behind the Fed-Ex building to the north. There are steep slopes along the south side. The left and right banks are similar with the exception of the extent of impervious surface witl the riparian area on the left bank is <10%.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-4
Left bank

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**2**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**3**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**2**
b. High, severe, very high	1 pts	

Total Points: **13**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-4
Left bank

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**1**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**1**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**3**
b. Yes	1 pts	

Total Points: **5**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-4
Left bank

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-4
Left bank

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**2**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**3**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**3**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-4
Left bank

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**3**
c. Greater than 75%	1 pt	

Total Points: **20**

Function: **High (19-23 pts)** **Medium (13-18 pts)** **Low (8-12 pts)**

FUNCTION IS: **HIGH**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: Viewed N of fenceline b/w GS-4 & the Fed Ex parking lot

Date: 7/27/2009

Riparian Code: R-GS-4 Right bank

On-site: ☒ **Off-Site:** ☐

Reach Length: 780 feet

Investigators: SE - ME

Hydrologic Basin: Glenwood Slough

WATER RESOURCE INFORMATION

Water Resource:				
Stream/River:		**Width:**		feet
Lake/Pond:	x	**Width:**	50 - 75	feet
Wetland:		**Width:**		feet

LWI Wetland Code: GS-3

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☐ **No** ☒

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

Within FEMA-mapped 100-year floodplain: **Yes** ☐ **No** ☒

Mapped soil series: Chehalis silty clay loam, Chehalis-Urban Land complex

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☐
Commercial/Indus.:	☒	**Undeveloped:**	☒
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Populus trichocarpa	*Echinocystis lobata*
Pseudotsuga menziesii	*Solanum dulcamara*
Rubus discolor	
Prunus virginiana	
Fraxinus latifolia	
Acer macrophyllum	
Holodiscus discolor	

1 meter = 3.2 feet

RIPARIAN CODE:	**R-GS-4 Right bank**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☒ >5:1 (20%) ☐

Extent of impervious surface within the riparian area. (Question 4)

<10% ☐ 10% - 25% ☒ >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☐ No ☒

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☒ No ☐

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☒ 10% - 40% ☐ <10% ☐

Degree of development or human caused disturbance. (Question 19)

<25% ☒ 25% - 75% ☐ >75% ☐

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☐ No ☒

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☐ No or no flood prone area present ☒

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☐ 2 layers ☒ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-4 Right bank

Date: 7/28/2009 **Investigators:** SE - ME

Dominant tree species: *Pseudotsuga menziesii* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 120/50-75 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: Pond behind the Fed-Ex building to the north. There are steep slopes along the south side. The left and right banks are similar with the exception of the extent of impervious surface witl the riparian area on the right bank is 10-25%.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-4
Right bank

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**2**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**2**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**2**
b. High, severe, very high	1 pts	

Total Points: **12**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-4
Right bank

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**1**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**1**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**3**
b. Yes	1 pts	

Total Points: **5**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-4
Right bank

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-4
Right bank

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**2**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**3**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**3**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-4
Right bank

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**3**
c. Greater than 75%	1 pt	

Total Points: **20**

Function: **High (19-23 pts)** **Medium (13-18 pts)** **Low (8-12 pts)**

FUNCTION IS: **HIGH**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: Viewed from the southern portion of ODOT yard

Date: 9/15/2009

Riparian Code: R-GS-5 Left bank

On-site: ☒ **Off-Site:** ☐

Reach Length: 339 feet

Investigators: SE - ME

Hydrologic Basin: Glenwood Slough

WATER RESOURCE INFORMATION

Water Resource:				
	Stream/River:	x	**Width:** 2-6	feet
	Lake/Pond:		**Width:**	feet
	Wetland:		**Width:**	feet

LWI Wetland Code:

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☐ **No** ☒

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

Within FEMA-mapped 100-year floodplain: **Yes** ☐ **No** ☒

Mapped soil series: Chehalis silty clay loam, Chehalis-Urban Land complex

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☐
Commercial/Indus.:	☒	**Undeveloped:**	☐
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Psedotsuga mensiesii	*Cirsium arvense*
Rubus discolor	*Artemesia sp.*
Symphoricarpos albus	*Heracleum maximum*
Acer circinatum	*Elymus glaucus*
Cytisus scoparius	

1 meter = 3.2 feet

RIPARIAN CODE:	**R-GS-5 Left bank**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%) ☒

Extent of impervious surface within the riparian area. (Question 4)

<10% ☐ 10% - 25% ☒ >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☒ No ☐

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☒ 10% - 40% ☐ <10% ☐

Degree of development or human caused disturbance. (Question 19)

<25% ☐ 25% - 75% ☐ >75% ☒

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☒ No ☐

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☒ No or no flood prone area present ☐

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☐ 2 layers ☒ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-5 Left bank

Date: 9/15/2009 **Investigators:** SE-ME

Dominant tree species: *Pseudotsuga menziesii* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 120/75 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: The western fill slope of R-GS-5 abuts Glenwood Boulevard. It is 2-6 feet wide and had 2 inches of flowing water at the time of the 9/15/09 site visit. R-GS-5 flows north where it converges with R-GS-4 and flows under Glenwood Boulevard into R-GS-3. The left and right bank are similar with the exception of the left bank average slopeis 20%, the extent of impervious surface within t riparian area is 10-25%, the degree of development or human caused disturbance is >75%, and there are two vegetation layers present.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-5
Left bank

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**1**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**2**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**2**
b. High, severe, very high	1 pts	

Total Points: **11**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-5
Left bank

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**3**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**3**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**1**
b. Yes	1 pts	

Total Points: **7**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-5
Left bank

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-5
Left bank

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**2**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**1**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**3**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-5
Left bank

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**1**
c. Greater than 75%	1 pt	

Total Points: **16**

Function: **High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)**

FUNCTION IS: **MEDIUM**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: Viewed from the southern portion of ODOT yard

Date: 9/15/2009

Riparian Code: R-GS-5 Right bank

On-site: ☒ **Off-Site:** ☐

Reach Length: 339 feet

Investigators: SE - ME

Hydrologic Basin: Glenwood Slough

WATER RESOURCE INFORMATION

Water Resource:	**Stream/River:**	x	**Width:** 2-6	feet
	Lake/Pond:		**Width:**	feet
	Wetland:		**Width:**	feet

LWI Wetland Code:

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☐ **No** ☒

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

Within FEMA-mapped 100-year floodplain: **Yes** ☐ **No** ☒

Mapped soil series: Chehalis silty clay loam, Chehalis-Urban Land complex

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☐
Commercial/Indus.:	☒	**Undeveloped:**	☐
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Psedotsuga mensiesii	*Cirsium arvense*
Rubus discolor	*Artemesia sp.*
Symphoricarpos albus	*Heracleum maximum*
Acer circinatum	*Elymus glaucus*
Cytisus scoparius	

1 meter = 3.2 feet

RIPARIAN CODE:	**R-GS-5 Right bank**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☒ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%) ☐

Extent of impervious surface within the riparian area. (Question 4)

<10% ☒ 10% - 25% >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☒ No ☐

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☒ 10% - 40% ☐ <10% ☐

Degree of development or human caused disturbance. (Question 19)

<25% ☐ 25% - 75% ☒ >75% ☐

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☒ No ☐

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☒ No or no flood prone area present ☐

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☒ 2 layers ☐ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-5 Right bank

Date: 9/15/2009 **Investigators:** SE-ME

Dominant tree species: *Pseudotsuga menziesii* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 120/50 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: The western fill slope of R-GS-5 abuts Glenwood Boulevard. It is 2-6 feet wide and had 2 inches of flowing water at the time of the 9/15/09 site visit. R-GS-5 flows north where it converges with R-GS-4 and flows under Glenwood Boulevard into R-GS-3. The left and right bank are similar with the exception of the right bank average slope is 10%, the extent of impervious surface within the riparian area is <10%, the degree of development or human caused disturbance is 25-75%, and there are more than two vegetation layers present.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-5
Right bank

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**3**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**3**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**2**
b. High, severe, very high	1 pts	
Total Points:		**14**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-5
Right bank

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**3**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**3**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**1**
b. Yes	1 pts	

Total Points: **7**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-5
Right bank

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	
Total Points:		**8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-5
Right bank

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**3**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**1**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**3**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-5
Right bank

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**2**
c. Greater than 75%	1 pt	

Total Points: **18**

Function: **High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)**

FUNCTION IS: **MEDIUM**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: Viewed from the southern portion of ODOT yard

Date: 10/7/2009

Riparian Code: R-GS-6

On-site: ☒ **Off-Site:** ☐

Reach Length: 575 feet

Investigators: SE-ME

Hydrologic Basin: Glenwood Slough

WATER RESOURCE INFORMATION

Water Resource:				
	Stream/River:	X	**Width:** 2	feet
	Lake/Pond:		**Width:**	feet
	Wetland:		**Width:**	feet

LWI Wetland Code:

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☐ **No** ☒

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

Within FEMA-mapped 100-year floodplain: **Yes** ☐ **No** ☒

Mapped soil series: Chehalis silty clay loam

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☐
Commercial/Indus.:	☒	**Undeveloped:**	☐
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Salix sitchensis	*Cirsium arvense, Phalaris arundinacea*
Rosa nutkana	*Solanum dulcamara*
Salix lasiandra	*Lathyrus sp.*
Rubus discolor	*Equisetum arvense*
	Aster sp.
	Conium maculatum
	Dipsacus sylvestris

1 meter = 3.2 feet

RIPARIAN CODE:	R-GS-6

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☒ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%) ☐

Extent of impervious surface within the riparian area. (Question 4)

<10% ☒ 10% - 25% >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☒ No ☐

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☐ Herbaceous vegetation ☒ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☐ 10% - 40% ☒ <10% ☐

Degree of development or human caused disturbance. (Question 19)

<25% ☐ 25% - 75% ☒ >75% ☐

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☐ Herbaceous vegetation ☒ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☐ No ☒

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☐ No or no flood prone area present ☒

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☐ 2 layers ☒ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-6

Date: 10/7/2009 **Investigators:** SE-ME

Dominant tree species: *Salix sitchensis* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 30 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: R-GS-6 is located between the railroad tracks and the ODOT maintenance yard. R-GS-6 is a channelized manmade feature that flows northwest and converges with GS-5.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-6

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**3**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**2**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**2**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**3**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**2**
b. High, severe, very high	1 pts	

Total Points: **12**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-6

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**1**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**1**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**1**
b. Yes	1 pts	

Total Points: **3**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **LOW**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-6

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**2**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **7**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-6

WILDLIFE HABITAT

			Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?			
a. More than 2 layers	3 pts		
b. 2 layers	2 pts		**2**
c. 1 layer, or unvegetated	1 pt		
13. What is the dominant vegetation layer in the riparian area?			
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts		
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts		**2**
c. Bare ground	1 pt		
14. Does woody vegetation hang over the edge of the water?			
a. Yes	2 pts		**2**
b. No	1 pt		
15. Is large woody debris present within the riparian area?			
a. Yes	3 pts		**1**
b. No	1 pt		
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?			
a. Greater than 40%	3 pts		
b. Between 10% and 40%	2 pts		**2**
c. Less than 10%	1 pt		

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-6

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**2**
c. Greater than 75%	1 pt	

Total Points: **15**

Function: **High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)**

FUNCTION IS: **MEDIUM**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: Viewed from Henderson Ave, and Newman Street

Date: 10/7/2009

Riparian Code: R-GS-7 Left bank

On-site: ☒ **Off-Site:** ☐

Reach Length: 1,669 feet

Investigators: SE-ME

Hydrologic Basin: Glenwood Slough

WATER RESOURCE INFORMATION

Water Resource:	**Stream/River:**	X	**Width:** 8-10	feet
	Lake/Pond:		**Width:**	feet
	Wetland:		**Width:**	feet

LWI Wetland Code: GS-5

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☐ **No** ☒

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

Within FEMA-mapped 100-year floodplain: **Yes** ☐ **No** ☒

Mapped soil series: Chehalis silty clay loam, Newberg fine sandy loam

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☐
Commercial/Indus.:	☒	**Undeveloped:**	☐
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Fraxinus latifolia	*Heracleum lanatum*
Symphoricarpos albus	*Phalaris arundinacea*
Rubus discolor	*Tellima grandiflora*
Crataegus monogyna	*Carex leptopoda*
Echinocystis lobata	
Crataegus douglasii	

1 meter = 3.2 feet

RIPARIAN CODE:	**R-GS-7 Left bank**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☒ >5:1 (20%) ☐

Extent of impervious surface within the riparian area. (Question 4)

<10% ☒ 10% - 25% >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☒ No ☐

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☒ 10% - 40% ☐ <10% ☐

Degree of development or human caused disturbance. (Question 19)

<25% ☐ 25% - 75% ☒ >75% ☐

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☐ No ☒

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☐ No or no flood prone area present ☒

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☐ 2 layers ☒ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-7 Left bank

Date: 10/7/2009 **Investigators:** SE-ME

Dominant tree species: *Fraxinus latifolia* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 75 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: Railroad is located on left side; development is located to the right. Wetted width is approximately 4-6 feet; average water depth was two inches at the time of the October 2009 site visit. The left and right bank of the riparian area are similar with the exception of the left bank between 10-20%.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-7
Left bank

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**2**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**3**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**2**
b. High, severe, very high	1 pts	

Total Points: **13**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-7
Left bank

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**1**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**1**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**1**
b. Yes	1 pts	

Total Points: **3**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **LOW**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-7
Left bank

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-7
Left bank

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**2**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**1**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**3**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-7
Left bank

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**2**
c. Greater than 75%	1 pt	

Total Points: **17**

Function: **High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)**

FUNCTION IS: **MEDIUM**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: Viewed from Henderson Ave, and Newman Street

Date: 10/7/2009

Riparian Code: R-GS-7 Left bank

On-site: ☒ **Off-Site:** ☐

Reach Length: 1,669 feet

Investigators: SE-ME

Hydrologic Basin: Glenwood Slough

WATER RESOURCE INFORMATION

Water Resource:	**Stream/River:**	X	**Width:** 8-10	feet
	Lake/Pond:		**Width:**	feet
	Wetland:		**Width:**	feet

LWI Wetland Code: GS-5

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☐ **No** ☒

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

Within FEMA-mapped 100-year floodplain: **Yes** ☐ **No** ☒

Mapped soil series: Chehalis silty clay loam, Newberg fine sandy loam

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☐
Commercial/Indus.:	☒	**Undeveloped:**	☐
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Fraxinus latifolia	*Heracleum lanatum*
Symphoricarpos albus	*Phalaris arundinacea*
Rubus discolor	*Tellima grandiflora*
Crataegus monogyna	*Carex leptopoda*
Echinocystis lobata	
Crataegus douglasii	

1 meter = 3.2 feet

RIPARIAN CODE:	**R-GS-7 Right bank**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☒ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%) ☐

Extent of impervious surface within the riparian area. (Question 4)

<10% ☒ 10% - 25% >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☒ No ☐

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☒ 10% - 40% ☐ <10% ☐

Degree of development or human caused disturbance. (Question 19)

<25% ☐ 25% - 75% ☒ >75% ☐

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☐ No ☒

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☐ No or no flood prone area present ☒

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☐ 2 layers ☒ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-7 Right bank

Date: 10/7/2009 **Investigators:** SE-ME

Dominant tree species: *Fraxinus latifolia* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 75/>120 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: Railroad is located on left side; development is located to the right. Wetted width is approximately 4-6 feet; average water depth was two inches at the time of the October 2009 site visit. The left and right bank of the riparian area are similar with the exception of the right bank at 10%.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-7
Right bank

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**3**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**3**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**2**
b. High, severe, very high	1 pts	
Total Points:		**14**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-7
Right bank

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**1**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**1**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**1**
b. Yes	1 pts	

Total Points: **3**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **LOW**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-7
Right bank

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-7
Right bank

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**2**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**1**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**3**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-GS-7
Right bank

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**2**
c. Greater than 75%	1 pt	

Total Points: **17**

Function: **High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)**

FUNCTION IS: **MEDIUM**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: East 22nd Avenue

Date: 10/7/2009

Riparian Code: R-GS-8

On-site: ☒ **Off-Site:** ☐

Reach Length: 317

Investigators: ME-SE

Hydrologic Basin: Glenwood Slough

WATER RESOURCE INFORMATION

Water Resource:			
Stream/River:	X	**Width:** 3	feet
Lake/Pond:		**Width:**	feet
Wetland:		**Width:**	feet

LWI Wetland Code:

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☐ **No** ☒

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

Within FEMA-mapped 100-year floodplain: **Yes** ☐ **No** ☒

Mapped soil series: Urban land-Hazelair-Dixonville complex

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☒
Commercial/Indus.:	☒	**Undeveloped:**	☒
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Salix sitchensis	*Festuca arundinacea*
Populus trichocarpa	*Typha latifolia*
Rubus discolor	*Carex obnupta*
	Trifolium pratense
	Daucus carota
	Tanacetum vulgare

1 meter = 3.2 feet

RIPARIAN CODE:	R-GS-8

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☒ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%) ☐

Extent of impervious surface within the riparian area. (Question 4)

<10% ☐ 10% - 25% >25% ☒

Is the reach constricted by man-made features? (Question 8)

Yes ☒ No ☐

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☐ 10% - 40% ☐ <10% ☒

Degree of development or human caused disturbance. (Question 19)

<25% ☐ 25% - 75% ☐ >75% ☒

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☐ Herbaceous vegetation ☒ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☐ No ☒

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☐ No or no flood prone area present ☒

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☐ 2 layers ☒ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-8

Date: 10/7/2009 **Investigators:** ME-SE

Dominant tree species: *Salix sitchensis* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 20 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: The riparian area appears to be a roadside ditch; however, it has perennial flow, therefore it was evaulated as a stream. R-GS-8 is approximately 3 feet wide and the water flows north into a culvert under East Ave. It is assumed the culvert daylights north into either R-GS-6 or R-GS-7.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-8

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**3**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**2**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**1**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**2**
b. High, severe, very high	1 pts	
Total Points:		**11**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-8

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**1**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**1**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**1**
b. Yes	1 pts	

Total Points: **3**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **LOW**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-8

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	
Total Points:		**8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-8

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**2**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**1**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**1**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-8

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**1**
c. Greater than 75%	1 pt	

Total Points: **14**

Function: **High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)**

FUNCTION IS: **MEDIUM**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: Viewed from the southern and eastern portion of the drainage

Date: 10/7/2009

Riparian Code: R-GS-9

On-site: ☐ **Off-Site:** ☒

Reach Length: 274 feet

Investigators: ME-SE

Hydrologic Basin: Glenwood Slough

WATER RESOURCE INFORMATION

Water Resource:				
	Stream/River:	X	**Width:** 40	feet
	Lake/Pond:		**Width:**	feet
	Wetland:		**Width:**	feet

LWI Wetland Code:

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☐ **No** ☒

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

Within FEMA-mapped 100-year floodplain: **Yes** ☐ **No** ☒

Mapped soil series: Bellpine silty clay loam

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☐
Commercial/Indus.:	☒	**Undeveloped:**	☒
Residential:	☒	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Salix lasiandra	

1 meter = 3.2 feet

RIPARIAN CODE:	R-GS-9

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%) ☒

Extent of impervious surface within the riparian area. (Question 4)

<10% ☒ 10% - 25% >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☐ No ☒

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☐ 10% - 40% ☐ <10% ☒

Degree of development or human caused disturbance. (Question 19)

<25% ☐ 25% - 75% ☒ >75% ☐

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☐ Herbaceous vegetation ☒ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☐ No ☒

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☐ No or no flood prone area present ☒

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☐ 2 layers ☐ 1 layer or unvegetated ☒

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-9

Date: 10/7/2009 **Investigators:** ME-SE

Dominant tree species: *Salix lasiandra* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 35 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: PHS was able to observe the drainage from the southern and western portions. There are very steep slopes down to the drainage. It drains north towards E. 22nd Avenue. PHS could not see the bottom of the drainage due to a steep bank and *Salix* sp. thicket.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-9

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**1**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**2**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**3**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**2**
b. High, severe, very high	1 pts	
Total Points:		**11**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-9

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**1**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**1**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**3**
b. Yes	1 pts	

Total Points: **5**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-9

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-9

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**1**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**1**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**1**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE

R-GS-9

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**2**
c. Greater than 75%	1 pt	

Total Points: **14**

Function: **High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)**

FUNCTION IS: **MEDIUM**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: N of Franklin Blvd, W of the crane shop along the River

Date: 10/7/2009

Riparian Code: R-WR-1 Left bank

On-site: ☒ **Off-Site:** ☐

Reach Length: 4671 feet

Investigators: ME - SE

Hydrologic Basin: Willamette River

WATER RESOURCE INFORMATION

Water Resource:			Width:	
	Stream/River:	X	Approximately 420	feet
	Lake/Pond:			feet
	Wetland:			feet

LWI Wetland Code:

Water present year-round: Yes ☒ No ☐

Are salmonids present in the adjacent water resource? Yes ☒ No ☐

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

Within FEMA-mapped 100-year floodplain: Yes ☒ No ☐

Mapped soil series: Newberg-Urban land complex

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☒
Commercial/Indus.:	☒	**Undeveloped:**	☐
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Acer macrophyllum, Populus trichocarpa	*Lactuca serriola*
Fraxinus latifolia	*Hypericum perforatum*
Rubus discolor	*Hypochaeris radicata*
Hedera helix	*Carex obnupta*
Alnus rubra	
Corylus cornuta	
Salix lasiandra	

1 meter = 3.2 feet

RIPARIAN CODE:	**R-WR-1 Left bank**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%) ☒

Extent of impervious surface within the riparian area. (Question 4)

<10% ☐ 10% - 25% >25% ☒

Is the reach constricted by man-made features? (Question 8)

Yes ☒ No ☐

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☐ 10% - 40% ☒ <10% ☐

Degree of development or human caused disturbance. (Question 19)

<25% ☐ 25% - 75% ☒ >75% ☐

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☒ No ☐

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☐ No or no flood prone area present ☒

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☒ 2 layers ☐ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-WR-1 Left bank

Date: 10/7/2009 **Investigators:** ME-SE

Dominant tree species: *Acer macrophyllum* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 75/30 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: Developed portion along the south bank of the Willamette River. No access to upper beach. Assessment taken at downstream (west) end just north of Franklin Boulevard.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-1
Left bank

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**1**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**1**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**2**
b. High, severe, very high	1 pts	
Total Points:		**10**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-1
Left bank

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**3**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**1**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**1**
b. Yes	1 pts	

Total Points: **5**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-1
Left bank

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-1
Left bank

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**3**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**1**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**2**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-1
Left bank

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**2**
c. Greater than 75%	1 pt	

Total Points: **17**

Function: **High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)**

FUNCTION IS: **MEDIUM**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: Brambaugh property on N Brooklyn Street

Date: 10/7/2009

Riparian Code: R-WR-2 Left bank

On-site: ☒ **Off-Site:** ☐

Reach Length: 130 feet

Investigators: SE-ME

Hydrologic Basin: Willamette River

WATER RESOURCE INFORMATION

Water Resource:	**Stream/River:**	X	**Width:** 300	feet
	Lake/Pond:		**Width:**	feet
	Wetland:		**Width:**	feet

LWI Wetland Code:

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☒ **No** ☐

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

Within FEMA-mapped 100-year floodplain: **Yes** ☒ **No** ☐

Mapped soil series: Newberg fine sandy loam

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☐
Commercial/Indus.:	☒	**Undeveloped:**	☒
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Populus trichocarpa, Symphoricarpos albus,	*Mentha sp., Polystichum munitum*
Alnus rhombifolia, Acer macrophyllum, Corylus	*Carex obnupta*
cornuta, Physocarpus capitatus, Cornus	*Hypericum perforatum*
stolonifera, Salix sitchensis, Hedera helix, Salix	*Rubus ursinus*
lasiandra, Rubus discolor, Crataegus douglasii,	*Phalaris arundinacea*
Crataegus monogyna, Rosa nutkana	*Aster sp.*
	Hypericum perforatum

1 meter = 3.2 feet

RIPARIAN CODE:	**R-WR-2 Left bank**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☒ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%) ☐

Extent of impervious surface within the riparian area. (Question 4)

<10% ☒ 10% - 25% >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☐ No ☒

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☒ 10% - 40% ☐ <10% ☐

Degree of development or human caused disturbance. (Question 19)

<25% ☐ 25% - 75% ☐ >75% ☒

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☒ No ☐

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☒ No or no flood prone area present ☐

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☒ 2 layers ☐ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-WR-2 Left bank

Date: 10/7/2009 **Investigators:** SE-ME

Dominant tree species: *Populus trichocarpa* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 75/75 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: This section of the Willamette River riparian area is one of the few residential lots that remains forested. The vegetation is predominately native. The house/structure on site is set back from the river and has a relatively wide riparian corridor.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-2
Left bank

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**3**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**3**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**2**
b. High, severe, very high	1 pts	
Total Points:		**14**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-2
Left bank

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**3**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**3**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**3**
b. Yes	1 pts	

Total Points: **9**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-2
Left bank

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-2
Left bank

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**3**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**1**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**3**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-2
Left bank

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**1**
c. Greater than 75%	1 pt	

Total Points: **17**

Function: **High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)**

FUNCTION IS: **MEDIUM**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: Under Franklin Bridge across Willamette River

Date: 10/7/2009

Riparian Code: R-WR-3 Left bank

On-site: ☒ **Off-Site:** ☐

Reach Length: 2,311 feet

Investigators: ME-SE

Hydrologic Basin: Willamette River

WATER RESOURCE INFORMATION

Water Resource:	**Stream/River:**	X	**Width:** 400	feet
	Lake/Pond:		**Width:**	feet
	Wetland:		**Width:**	feet

LWI Wetland Code:

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☒ **No** ☐

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

Within FEMA-mapped 100-year floodplain: **Yes** ☒ **No** ☐

Mapped soil series: Newberg fine sandy loam

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☒
Commercial/Indus.:	☒	**Undeveloped:**	☒
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Quercus garryana	*Festuca arundinacea*
Populus trichocarpa	*Holcus lanatus*
Salix spp.	*Phalaris arundinacea*
Fraxinus latifolia	*Taraxacum officinale*
Symphoricarpus albus	*Carex obnupta*
Berberis aquifolium	*Dactylis glomerate*
	Polystichum munitum

1 meter = 3.2 feet

RIPARIAN CODE:	**R-WR-3 Left bank**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☒ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%) ☐

Extent of impervious surface within the riparian area. (Question 4)

<10% ☒ 10% - 25% >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☐ No ☒

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☒ 10% - 40% ☐ <10% ☐

Degree of development or human caused disturbance. (Question 19)

<25% ☐ 25% - 75% ☒ >75% ☐

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☐ No ☒

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☐ No or no flood prone area present ☒

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☒ 2 layers ☐ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-WR-3 Left bank

Date: 10/7/2009 **Investigators:** ME-SE

Dominant tree species: *Populus trichocarpa* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 75 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: Area under Franklin Bridge, just west of Willamette River. There is a narrow fringe of trees and shrubs along this section of the Willamette; however, just beyond the dominant vegetation the area consists of mowed grass and forbs.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-3
Left bank

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**3**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**3**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**2**
b. High, severe, very high	1 pts	
Total Points:		**14**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-3
Left bank

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**1**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**1**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**3**
b. Yes	1 pts	

Total Points: **5**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-3
Left bank

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-3
Left bank

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**3**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**1**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**3**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-3
Left bank

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**2**
c. Greater than 75%	1 pt	

Total Points: **18**

Function: **High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)**

FUNCTION IS: **MEDIUM**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: In the Shamrock Village mobile home park

Date: 9/15/2009

Riparian Code: R-WR-4 Left bank

On-site: ☒ **Off-Site:** ☐

Reach Length: 2,150 feet

Investigators: ME-SE

Hydrologic Basin: Willamette River

WATER RESOURCE INFORMATION

Water Resource:				
	Stream/River:	X	**Width:** 200	feet
	Lake/Pond:		**Width:**	feet
	Wetland:		**Width:**	feet

LWI Wetland Code: None

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☒ **No** ☐

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

Within FEMA-mapped 100-year floodplain: **Yes** ☒ **No** ☐

Mapped soil series: Newberg fine sandy loam, Newberg-Urban land complex, Camas gravelly sandy loam

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☒
Commercial/Indus.:	☐	**Undeveloped:**	☐
Residential:	☒	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Liquidambar styraciflua	*Unknown grass*
Pseudotsuga menziesii	*Taraxacum officinalte*
Libocedrys decurrens	*Trifolium pratense*
Acer macrophyllum	
Salix sp.	
Fraxinus latifolia	
Rubus discolor	

1 meter = 3.2 feet

RIPARIAN CODE:	**R-WR-4 Left bank**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☒ >5:1 (20%) ☐

Extent of impervious surface within the riparian area. (Question 4)

<10% ☒ 10% - 25% >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☐ No ☒

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☐ 10% - 40% ☐ <10% ☒

Degree of development or human caused disturbance. (Question 19)

<25% ☐ 25% - 75% ☒ >75% ☐

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☒ high, very high, severe ☐

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☒ No ☐

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☒ No or no flood prone area present ☐

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☐ 2 layers ☒ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-WR-4 Left bank

Date: 9/15/2009 **Investigators:** ME-SE

Dominant tree species: *Pseudotsuga menziesii* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 75 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: In Shamrock Village, there is a narrow strip of vegetation east of the mobile park road and river. Mature trees with grass and picnic tables make up this section of riparian corridor.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-4
Left bank

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**2**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**3**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**2**
b. High, severe, very high	1 pts	

Total Points: **13**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-4
Left bank

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**3**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**3**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**3**
b. Yes	1 pts	

Total Points: **9**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-4
Left bank

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-4
Left bank

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**2**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**1**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**1**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-4
Left bank

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**2**
c. Greater than 75%	1 pt	

Total Points: **15**

Function: **High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)**

FUNCTION IS: **MEDIUM**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: West of Franklin Blvd. in Wetland WR-7

Date: 1/0/1900

Riparian Code: R-WR-5 Left bank

On-site: ☒ **Off-Site:** ☐

Reach Length: 5,134 feet

Investigators: SE - ME

Hydrologic Basin: Willamette River

WATER RESOURCE INFORMATION

Water Resource:	**Stream/River:**	x	**Width:** 100	feet
	Lake/Pond:		**Width:**	feet
	Wetland:		**Width:**	feet

LWI Wetland Code: None

Water present year-round: **Yes** ☒ **No** ☐

Are salmonids present in the adjacent water resource? **Yes** ☒ **No** ☐

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

Within FEMA-mapped 100-year floodplain: **Yes** ☒ **No** ☐

Mapped soil series: Dixonville-Philomath-Hazelair complex, Ochrepts and Umbrepts, Riverwash

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☒
Commercial/Indus.:	☒	**Undeveloped:**	☒
Residential:	☐	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Acer macrophyllum, Pseudotsuga menziesii,	*Rubus discolor*
Quercus garryana, Rubus discolor,	*Daucus carota*
Populus trichocarpa,	*Festuca arundinacea*
Rhus diversiloba	*grass sp.*
Populus trichocarpa	*Cynosurus echinatus*
Fraxinus latifolia	*Dactylis glomerata*
Salix sp.	

1 meter = 3.2 feet

RIPARIAN CODE:	**R-WR-5 Left bank**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%) ☒

Extent of impervious surface within the riparian area. (Question 4)

<10% ☒ 10% - 25% >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☐ No ☒

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☒ 10% - 40% ☐ <10% ☐

Degree of development or human caused disturbance. (Question 19)

<25% ☐ 25% - 75% ☒ >75% ☐

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☐ high, very high, severe ☒

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☒ No ☐

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☒ No or no flood prone area present ☐

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☒ 2 layers ☐ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-WR-5 Left bank

Date: 9/15/2009 **Investigators:** SE/ME

Dominant tree species: *Acer macrophyllum* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 75 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: The southern portion of this section of riparian area is forested with an unimproved road within the corridor. The left bank of the river is steep. The north and central portion of the corridor is undeveloped and has a narrow fringe of trees and vegetation along the river with bare, disturbed ground beyond. Since there was no access to the northern portion, observations were identified from aerial photographs.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-5
Left bank

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**1**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**3**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**1**
b. High, severe, very high	1 pts	

Total Points: **11**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-5
Left bank

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**3**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**3**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**3**
b. Yes	1 pts	

Total Points: **9**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-5
Left bank

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-5
Left bank

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**3**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**1**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**3**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-5
Left bank

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**3**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**1**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**2**
c. Greater than 75%	1 pt	

Total Points: **18**

Function: **High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)**

FUNCTION IS: **MEDIUM**

Riparian Characterization Form

Glenwood Area of Springfield

GENERAL INFORMATION

Location of data point: At culvert located east of Franklin Boulevard

Date: 10/7/2009

Riparian Code: R-WR-6 Left bank

On-site: ☒ **Off-Site:** ☐

Reach Length: 331 feet

Investigators: ME-SE

Hydrologic Basin: Willamette River

WATER RESOURCE INFORMATION

Water Resource:				
	Stream/River:	X	**Width:** 2-3	feet
	Lake/Pond:		**Width:**	feet
	Wetland:	X	**Width:**	feet

LWI Wetland Code: WR-7

Water present year-round: **Yes** ☐ **No** ☒

Are salmonids present in the adjacent water resource? **Yes** ☐ **No** ☒

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

Within FEMA-mapped 100-year floodplain: **Yes** ☐ **No** ☒

Mapped soil series: Dixonville-Philomath-Hazelair complex

Adjacent Land Uses? (Check as many as needed)

Agriculture:	☐	**Roads:**	☒
Commercial/Indus.:	☐	**Undeveloped:**	☒
Residential:	☒	**Forestry:**	☐

Woody vegetation (trees, shrubs, vines >1 meter)	**Herbaceous vegetation** (include trees, shrubs, vines <1 meter)
Acer macrophyllum, Populus trichocarpa	*Festuca arundinacea*
Ilex aquifolium, Rubus discolor	*Phalaris arundinacea*
Fraxinus latifolia	
Symphoricarpus albus	
Hedera helix	
Quercus garryana	
Oemleria cerasiformis	

1 meter = 3.2 feet

RIPARIAN CODE:	**R-WR-6 Left bank**

Average slope in the riparian area: (Question 1)

<10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%) ☒

Extent of impervious surface within the riparian area. (Question 4)

<10% ☒ 10% - 25% >25% ☐

Is the reach constricted by man-made features? (Question 8)

Yes ☐ No ☒

Does the orientation of the riparian area allow for shading of the water resource at midday in summer? (Question 9)

Yes ☒ No ☐

Dominant vegetation layer within riparian area? (Question 10)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Does woody vegetation hang over the edge of the water? (Questions 11 & 14)

Yes ☒ No ☐

Large woody debris in riparian area? (Question 15)

Yes ☐ No ☒

Percent of water resource bordered by vegetated riparian area at least 30 feet wide? (Question 16)

>40% ☒ 10% - 40% ☐ <10% ☐

Degree of development or human caused disturbance. (Question 19)

<25% ☒ 25% - 75% ☐ >75% ☐

How does the NRCS soil survey rank water erosion hazard of the dominant mapped unit in the Riparian Area? (Question 5)

low, slight moderate ☐ high, very high, severe ☒

What is the dominant vegetation at the top of bank (if defined) or edge of water resource? (Question 3)

Woody vegetation ☒ Herbaceous vegetation ☐ Bare ground ☐

Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource? (Question 6)

Yes ☐ No ☒

Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?

Yes ☐ No or no flood prone area present ☒

How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?

More than 2 ☒ 2 layers ☐ 1 layer or unvegetated ☐

Riparian Width Determination

Glenwood Area of Springfield

RIPARIAN CODE

R-WR-6 Left bank

Date: 10/7/2009 **Investigators:** ME-SE

Dominant tree species: *Populus trichocarpa* (see other side for list of species)

Potential tree height (PTH)/Actual Width of riparian area : 120 **feet**

(Width measured horizontally from edge of water resource)

PTH determined by:

On-site vegetation ☒ **Reference site** ☐ **Code** _____

Comments: The stream flows through Wetland WR-7. The stream begins upslope, east of I-5. The stream is culverted under Franklin Boulevard and outfalls east into the Willamette River.

Typical Cross Section:

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-6
Left bank

WATER QUALITY

		Score
1. What is the average slope in the riparian area?		
a. Less than 10:1 (10%)	3 pts	
b. Between 10:1 (10%) and 5:1 (20%)	2 pts	**1**
c. Greater than 5:1 (20%)	1 pt	
2. What is the dominant vegetation cover in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
3. What is the dominant vegetation at the top of bank (if defined) or edge of water resource?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
4. What is the extent of impervious surfaces within the riparian area?		
a. Less than 10%	3 pts	
b. Between 10% and 25%	2 pts	**3**
c. Greater than 25%	1 pt	
5. How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.		
a. Low, slight, moderate	2 pts	**1**
b. High, severe, very high	1 pts	

Total Points: **11**

Function: **High (12-14 pts)** **Medium (8-11 pts)** **Low (5-7 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-6
Left bank

FLOOD MANAGEMENT

		Score
6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?		
a. Yes	3 pts	**1**
b. No	1 pt	
7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?		
a. Yes	3 pts	**1**
b. No or no flood prone area present	1 pt	
8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?		
a. No	3 pts	**3**
b. Yes	1 pts	

Total Points: **5**

Function: **High (8-9 pts)** **Medium (5-7 pts)** **Low (3-4 pts)**

FUNCTION IS: **MEDIUM**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-6
Left bank

THERMAL REGULATION

		Score
9. Does the aspect or orientation of the riparian area allow for shading of water at midday in the summer?		
a. Yes	3 pts	**3**
b. No	1 pt	
10. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
11. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pts	

Total Points: **8**

Function: **High (7-8 pts)** **Medium (5-6 pts)** **Low (3-4 pts)**

FUNCTION IS: **HIGH**

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-6
Left bank

WILDLIFE HABITAT

		Score
12. How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?		
a. More than 2 layers	3 pts	
b. 2 layers	2 pts	**3**
c. 1 layer, or unvegetated	1 pt	
13. What is the dominant vegetation layer in the riparian area?		
a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high	3 pts	
b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high	2 pts	**3**
c. Bare ground	1 pt	
14. Does woody vegetation hang over the edge of the water?		
a. Yes	2 pts	**2**
b. No	1 pt	
15. Is large woody debris present within the riparian area?		
a. Yes	3 pts	**1**
b. No	1 pt	
16. What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?		
a. Greater than 40%	3 pts	
b. Between 10% and 40%	2 pts	**3**
c. Less than 10%	1 pt	

Questions continued on next page

Riparian Functional Assessment Answer Sheet

Glenwood Area of Springfield

RIPARIAN CODE
R-WR-6
Left bank

WILDLIFE HABITAT (continued)

		Score
17. Is surface water present throughout the year?		
a. Yes	3 pts	
b. No	1 pt	**1**
18. Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?		
a. Yes	3 pts	**3**
b. No	1 pt	
19. What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?		
a. Less than 25%	3 pts	
b. Between 25% and 75%	2 pts	**3**
c. Greater than 75%	1 pt	

Total Points: **19**

Function: **High (19-23 pts)** **Medium (13-18 pts)** **Low (8-12 pts)**

FUNCTION IS: **HIGH**